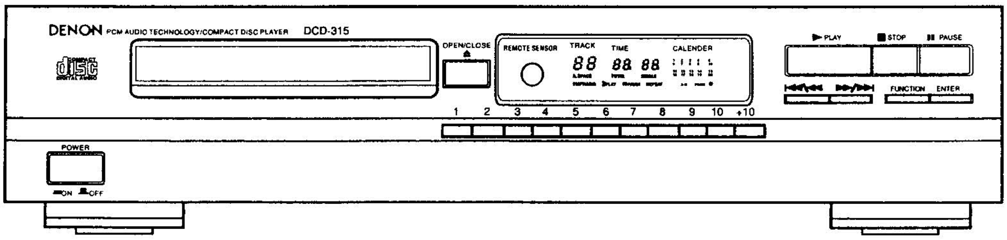
DENON

Hi-Fi Component

SERVICE MANUAL

MODEL DCD-315

STEREO CD PLAYER


DENON PCM AUDIO TECHNOLOGY/COMPACT DISC PLAYER DCD-315
COMPACT disc DIGITAL AUDIO
OPEN/CLOSE
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1 2 3 4 5 6 7 8 9 10 +10
POWER
ON OFF

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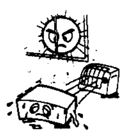
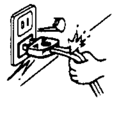
NIPPON COLUMBIA CO., LTD.

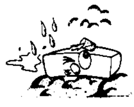
NOTE ON USE / HINWEISE ZUM GEBRAUCH / OBSERVATIONS RELATIVES A L'UTILISATION NOTE SULL'USO / NOTAS SOBRE EL USO / ALVORENS TE GEBRUIKEN / OBSERVERA OBSERVAÇOES SOBRE O USO



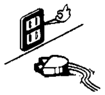
- Avoid high temperatures.
  Allow for sufficient heat dispersion when installed on a rack.
- Vermeiden Sie hohe Temperaturen.
  Beachten Sie, daß eine ausreichende Luftzirku-lation gewährleistet sein muß, wenn das Gerät in einem Regal aufgestellt werden soll.
- Éviter des températures élevées.
  Tenir compte d'une dispersion de chaleur suffisante lors de l'installation sur une étagère.
- Evitare di esporre l'unità ad alte temperature.
  Accertarsi che ci sia un'adeguata dispersione del calore quando l'unità è installata in un rack o in un mobile.
- Evite temperaturas elevadas.
  Asegúrese de garantizar una dispersión de calor suficiente al instalar la unidad en una consola.
- Vermijd hoge temperaturen.
  Zorg voor een degelijk hitteafvoer indien het apparaat op een rek wordt geplaatst.
- Undvik höga temperaturer.
  Se till att det finns möjlighet till god värmeav-ledning vid montering i ett rack.
- Evite temperaturas altas.
  Quando instalar o equipamento numa prateleira coloque-o de modo a permitir uma dissipação suficiente do calor.



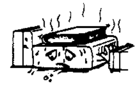
- Handle the power cord carefully.
  Hold the plug when unplugging the cord.
- Gehen Sie vorsichtig mit dem Netzkabel um.
  Halten Sie das Kabel am Stecker, wenn Sie es aus der Steckdose ziehen.
- Manipuler le cordon d'alimentation avec précaution.
  Tenir la prise lors du débranchement du cordon.
- Maneggiare con cura il cavo di alimentazione.
  Quando si scollega il cavo dalla presa, non tirare il cavo.
- Maneje el cordón de alimentación con cuidado.
  Sostenga el enchufe cuando desconecte el cordón de alimentación.
- Hanteer het netsnoer voorzichtig.
  Houd het snoer bij de stekker vast wanneer deze moet worden aan- of losgekoppeld.
- Hantera nätkabeln varsamt.
  Håll i kontakten när du drar ut den. Dra inte i kabeln.
- Manuseie o cabo de alimentação com cuidado.
  Agarre na ficha para desligar o cabo de alimentação da tomada.



- Keep the set free from moisture, water and dust.
- Halten Sie das Gerät von Feuchtigkeit, Wasser und Staub fern.
- Protéger l'appareil contre l'humidité, l'eau et la poussière.
- Mantenere l'unità lontana da umidità, acqua e polvere.
- Mantenga el equipo libre de humedad, agua y polvo.
- Laat geen vochtigheid, water of stof in het apparaat binnendringen.
- Utsätt inte apparaten för fukt, vatten och damm.
- Mantenha o equipamento livre de humidade, água ou pó.

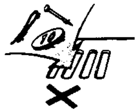


- Unplug the power cord when not using the set for long periods of time.
- Ziehen Sie das Netzkabel aus der Steckdose, wenn Sie das Gerät über einen längeren Zeitraum hinweg nicht verwenden..
- Débrancher le cordon d'alimentation lorsque l'appareil n'est pas utilisé pendant de longues périodes.
- Quando si prevede di non utilizzare l'unità per lunghi periodi di tempo, disinserire il cavo di alimentazione dalla presa.
- Desconecte el cordón de alimentación cuando no utilice el equipo por mucho tiempo.
- Neem altijd het netsnoer uit het stopkontakt wanneer het apparaat gedurende een lange periode niet wordt gebruikt.
- Dra ur nätkontakten om apparaten inte kommer att användas på länge.
- Desligue o cabo de alimentação quando não utilizar o equipamento durante periodos prolongados.

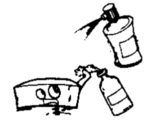


*(For sets with ventilation holes)

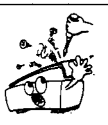
- Do not obstruct the ventilation holes.
- Die Lüftungsschlitze dürfen nicht verdeckt werden.
- Ne pas obstruer les trous d'aération.
- Non ostruire i fori per la ventilazione.
- No tape las ranuras de ventilación.
- De ventilatieopeningen mogen niet worden beblokkeerd.
- Täpp inte till ventilationsöppningarna.
- Não tape os orifícios de ventilação.



- Do not let foreign objects in the set.
- Lassen Sie keinerlei Gegenstände in das Gehäuseinnere eindringen.
- Ne pas laisser des objets étrangers dans l'appareil.
- Non far cadere alcun oggetto all'interno dell'unità.
- No inserte objetos extraños en el equipo.
- Laat geen vreemde voorwerpen in dit apparaat vallen.
- Se till att främmande föremål inte tränger in i apparaten.
- Evite deixar objectos estranhos sobre o aparelho.



- Do not let insecticides, benzene, and thinner come in contact with the set.
- Lassen Sie das Gerät nicht mit Insektiziden, benzenhaltigen oder anderen Verdünnungsmitteln in Berührung kommen.
- Ne pas mettre en contact des insecticides, du benzène et un diluent avec l'appareil.
- Evitare di utilizzare insetticidi, benzolo e solventi sull'unità.
- Laat geen insektenverdelgende middelen, benzine of verfverdunner met dit apparaat in kontakt komen.
- Se till att inte insektsmedel, bensen och thinner kommer i kontakt med apparatens hölje.
- Evite que insecticidas, benzina e diluente entrem em contacto com o equipamento.



- Never disassemble or modify the set in any way.
- Versuchen Sie niemals, das Gerät selbständig auseinanderzunehmen oder auf jegliche Art zu verändern.
- Ne jamais démonter ou modifier l'appareil d'une manière ou d'une autre.
- Non smontare o modificare in alcun modo l'unità.
- Nunca desarme o modifique el equipo de ninguna manera.
- Nooit dit apparaat demonteren of op andere wijze modifiëren.
- Ta inte isär apparaten och försök inte bygga om den.
- Nunca desmonte ou modifique o equipamento de alguma forma.

IMPORTANT TO SAFETY

WARNING:

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CLASS 1 LASER PRODUCT
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSAETTELSE FOR STRÅLING.

VAROITUS! LAITTEEN KÄYTTÄMINEN MUALLA KUIN TÄSSÄ KÄYTTÖOHJEESSA MAINITULLA TAVALLA SAATTAA ALTISTAA KÄYTTÄJÄN TURVALLISUUSLUOKAN 1 YLITTÄVÄLLE NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE.

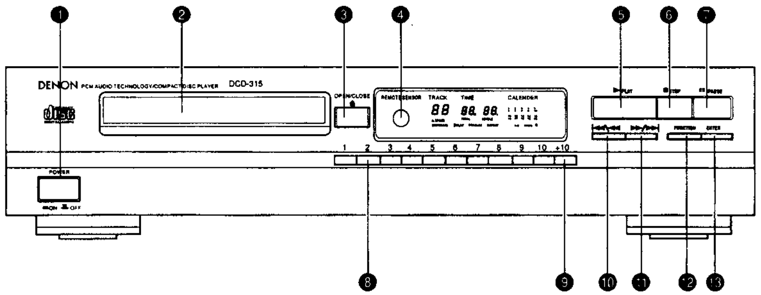
VARNING- OM APPARATEN ANVÄNDS PÅ ANNAT SÄTT ÄN I DENNA BRUKSANVISNING SPECIFICERATS, KAN ANVÄNDAREN UTSÄTTAS FÖR OSYNLIG LASERSTRÅLNING SOM ÖVERSKRIDER GRÄNSEN FÖR LASERKLASS 1.

NOTE:

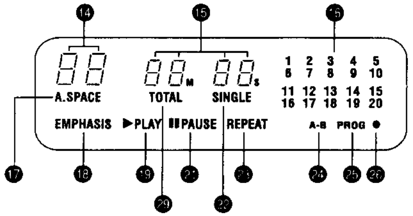
This CD player uses the semiconductor laser. To allow you to enjoy music at a stable operation, it is recommended to use this in a room of 5 °C (41 °F) - 35 °C (95 °F).

"CLASS 1
LASER PRODUCT"

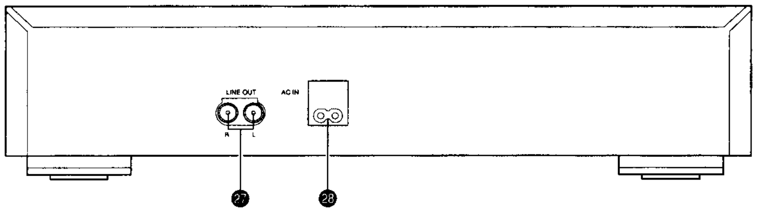
FRONT PANEL
VORDERSEITE
PANNEAU AVANT
PANNELLO FRONTALE
PANEL ANTERIOR
VOORPANEEL
FRONT PANELEN
PAINEL FRONTAL



DISPLAY
ANZEIGE
AFFICHAGE
DISPLAY
VISUALIZADOR
DISPLAY
DISPLAYEN
MOSTRADOR



REAR PANEL
RÜCKWAND
PANNEAU ARRIÈRE
PANNELLO POSTERIORE
PANEL POSTERIOR
ACHTERPANEEL
BAKSIDAN
PAINEL TRASEIRO



- **NUR FÜR EUROPÄISCHE MODELLE**

Konformitätserklärung

Die DENON Elektronik GmbH
Halskestr. 32
40880 Ratingen

erklärt als Hersteller/Importeur, daß das in dieser Bedienungsanleitung beschriebene Gerät den Technischen Vorschriften für Ton- und Fernseh-Rundfunkempfänger nach der Amtsblattverfügung 868/1989 (Amtsblatt des Bundesministers für Post und Telekommunikation vom 31.8.1989) entspricht.

Thank you for purchasing this DENON Compact Disc Player. Please read the operating instructions thoroughly in order to acquaint yourself with the CD player and achieve maximum satisfaction from it.

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Please check to make sure the following items are included with the main unit in the carton:

(1) Operating instructions 1
(2) Connection Cord 1
(3) AC Cord 1

FEATURES

The DCD-315 includes a multi-noise shaping D/A converter which has a built-in high performance digital filter. This assures accurate reproduction of the digital signals recorded on compact discs no matter whether they are pure studio recordings or "live" performance recordings. All parts making up this CD player have selected with the greatest care in order to produce high quality realistic playback of the full musical content on compact discs.

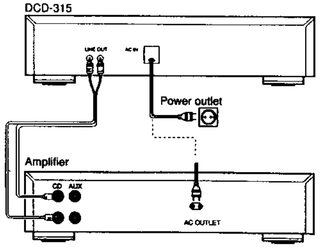
(1) **Multi-Level Noise Shaping D/A Converter**
The newly developed multi-noise shaping system is employed in the D/A converter to control distortion and to permit rich sound playback.

(2) **High Performance Digital Filter**
The DCD315 uses a highly accurate 8 times oversampling digital filter to achieve characteristics equal to those of the optimum analogue filter. This permits clear and vivid playback.

(3) **Remote Sensor**
A remote sensor is built in, so if the remote control unit for DENON's receivers and amplifiers or a separately purchased remote control unit (RC-241) is used, the DCD-315 can be operated from the optimum listening position. The remote control unit, of course, includes play, stop, and pause functions, but is also capable of such functions as direct selection and direct programming.

CONNECTION

(1) **Connecting the Output Terminal (LINE OUT)**
Use the included pin cords to connect the left (L) and right (R) output terminal (LINE OUT) of the DCD-315 to the CD or AUX or TAPE PLAY left (L) and right (R) input jacks of the amplifier.



Connection Precautions

- Before proceeding with connections or disconnections of cables and power cords, be sure to turn all system components off.
- Ensure that all cables are connected properly to the L (left) and R (right) jacks.
- Insert plugs fully into the terminals.
- Connect the output jacks to the amplifier CD, AUX or TAPE PLAY input jacks.

THE COMPACT DISC

1. **Precautions on handling compact discs**
   - Do not allow fingerprints, oil or dust on the surface of the compact disc. If the signal surface is dirty, wipe it off with a soft, dry cloth. Wipe in circular motions from the center and out.
   - Do not use water, benzene, thinner, record sprays, electrostatic proof chemicals, or silicone-treated cloth to clean discs.
   - Always use care when handling discs to prevent damaging the surface, in particular when removing a disc from the case and returning it.
   - Do not bend compact discs.
   - Do not apply heat to compact discs.
   - Do not enlarge the hole in the center of the disc.
   - Do not write on the disc and do not attach any labels.
   - Condensation will form on the disc surface if it is brought into a warm room from a cold area, such as outdoors during winter. Wait until the condensation disappears. Never dry discs with hair dryers, etc.

2. **Precautions on storage**
   - After playing a disc, always return it to its case.
   - Keep discs in the cases when they are not to be played. This will protect them from dust and dirt and prolong their service life.
   - Do not store discs in the following places:
     1) Places exposed to direct sunlight for a considerable time.
     2) Places subject to accumulation of dust or high humidity.
     3) Places exposed to high temperatures, such as close to heater outlets.

NAMES AND FUNCTIONS OF PARTS (Refer to page 3.)

FRONT PANEL

❶ **Power Switch (POWER)**
- When the power is turned on, "(00)" appears on the TRACK NO. display.
- Whenever the power switch is in the OFF state, the apparatus is still connected on AC line voltage.
  Please be sure to unplug the cord when you leave home for, say, a vacation.

❷ **Disc Holder**
- Load a disc here.

❸ **Open/Close Button (⏏ OPEN/CLOSE)**
- The disc holder is opened and closed by pressing this button.
- Press this button once to open the disc holder, and once again to close it.

❹ **Remote Control Sensor (REMOTE SENSOR)**
- This sensor receives the infrared light transmitted from the wireless remote control unit.
- For remote control, point the DENON's remote control unit towards this sensor.
- When a signal is transmitted from the remote control unit, the remote control indicator in the display ● will light up briefly.

❺ **Play Button (▶ PLAY)**
- Press this button to start playing the disc.
- Even when the disc tray is open, the disc tray closes and playback begins when this button is pressed.

❻ **Stop Button (■ STOP)**
- Press this button to stop playback.

❼ **Pause Button (❚❚ PAUSE)**
- Press this button to stop playback temporarily.
- Press this button or the play button (▶ PLAY) again to continue playback.

❽ **Number Buttons (1, 2, 3, 4, 5, 6, 7, 8, 9 and 10)**
- Use these buttons for the direct search and program memory functions.

❾ **+10 Button (+10)**
- Press this button first when selecting track numbers over 10. Use it together with the number buttons ●.

❿ **⏮\◀◀ (automatic/manual search reverse) button**
Use this to move to the beginning of a specific track. When pressed during playback or in the pause mode, the pickup moves backward a number of tracks equal to the number of times the button is pressed.

⓫ **▶▶/⏭ (automatic/manual search forward) button**
Use this to move to the beginning of a specific track. When pressed during playback or in the pause mode, the pickup moves forward a number of tracks equal to the number of times the button is pressed.
- The automatic search mode is set if the ⏮\◀◀ or ▶▶/⏭ button is released within 0.5 seconds, and the manual search mode is set if the button is held for over 0.5 seconds.

⓬ **FUNCTION Button**
- Use this button to select program/direct, repeat, auto space, time display and auto edit function. (Refer to page 8, 9 for details.)

⓭ **Enter Button**
- Use this button to set the program/direct, repeat, auto space, time display and auto edit functions selected with the FUNCTION button. (Refer to page 8, 9 for details.)

DISPLAY

⓮ **Track Number Indicator**

⓯ **Playback Time Indicator**

⓰ **20-Track Music Calendar**

⓱ **Auto Space Indicator**

⓲ **Emphasis Indicator**

⓳ **Play Indicator**

⓴ **Remaining Time of Entire Disc**

㉑ **Pause Indicator**

㉒ **Remaining Time of Current Track**

㉓ **All Repeat Indicator**

㉔ **A-B Repeat Indicator**

㉕ **Program Indicator**

㉖ **Remote Control Indicator**

REAR PANEL

㉗ **Output Terminal (LINE OUT)**
- Connect these jacks to the input jacks on your amplifier. (Refer to page 4 for details on the connections.)

㉘ **AC INLET**
- Connect the included AC cord here.

Continuous Button Operation
If the +10 button ●, the automatic/manual search reverse button ● or the automatic/manual search forward button ● are held in function of that button will be repeated.

OPENING AND CLOSING THE DISC HOLDER AND LOADING A DISC

Opening and closing the disc holder (This operation only works while the power is on.)

1. Press the power switch (POWER) to turn on the power.
2. Press the open/close button (⏏ OPEN/CLOSE).

How to load a disc

- Make sure the disc holder is completely open.
- Hold the disc by the edges and place it on the disc tray. (Do not touch the signal surface, i.e., the glossy side.)
- When using 12 cm diameter discs, make sure the outer edge matches the tray guide circumference (Fig. 1), and when using CD singles (8 cm diameter), match the outer edge with the inner tray guide circumference (Fig. 2).
- Press the open/close button (⏏ OPEN/CLOSE) to close the disc holder.
- When the disc holder is closed, the disc is read and after a few seconds the number of tracks and total playing time are displayed on the TRACK NO. and TIME displays, respectively.
- When the disc holder is open and a disc is loaded, you may also press the play (▶ PLAY) or pause (❚❚ PAUSE) button to close the disc holder. (If the play button (▶ PLAY) is pressed, playback will start immediately upon the disc contents having been read.)

Fig. 1

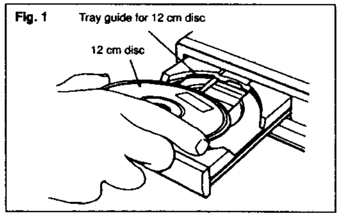
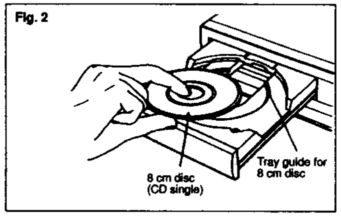

Tray guide for 12 cm disc
12 cm disc

Fig. 2

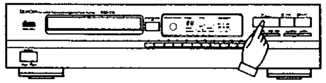

Tray guide for 8 cm disc
8 cm disc (CD single)

Caution:

- If your finger should get caught in the disc holder when it closes, press the open/close button (⏏ OPEN/CLOSE).
- Do not place any foreign objects on the disc tray, and do not place more than one disc on the tray at a time. Otherwise malfunction may occur.
- Do not push in the disc tray manually when the power is off as this may cause malfunction and damage the CD player.

NORMAL CD PLAYBACK

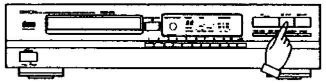
(1) Starting Playback



(▶ PLAY)

1. Press the power switch (POWER) to turn on the power.
2. Load the disc you want to play.
- When the disc holder is closed, the disc is read and the number of tracks and total playing time of the disc are displayed.
3. Press the play button (▶ PLAY).

(2) Stopping Playback

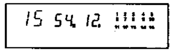


(■ STOP)

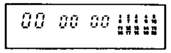
1. Press the stop button (■ STOP).
- When all tracks have been played on a disc, playback will stop by itself.

Precautions:

- If no disc has been loaded or the disc has been placed upside down, all indicators will light.
- When the information on the disc cannot be read correctly, for example due to dust or dirt on the disc, the indicators will read as shown below. Nothing will be shown on the TRACK NO. and TIME displays, and it may take quite a while to read the disc.



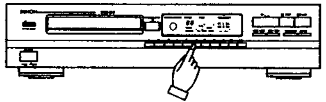
Normal display



Improper display

ADVANCED CD PLAYBACK

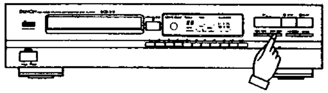
① **Playing a Specific Track** .... **Direct Search**



(Number buttons)

- Use the number buttons and the +10 button to input the number of the desired track. For example, to play track number 4, press [4], and to play track number 12, press [+10] and [2]. Playback will begin from that track.

② **Advancing to the next track during playback** .... **Automatic Search**

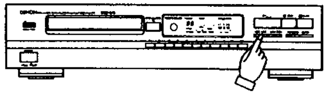


(▶▶/▶▶|)

Press the Automatic search forward button (▶▶/▶▶|) during playback, and it should be released within 0.5 seconds.

- The pickup will advance to the beginning of the next track and playback will continue. Pressing the button several times will forward the pickup the corresponding number tracks.

③ **Returning to the beginning of the current track during playback** .... **Automatic Search**



(|◀◀\◀◀)

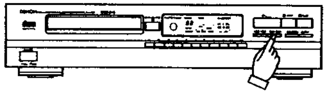
Press the Automatic search reverse button (|◀◀\◀◀) during playback, and it should be released within 0.5 seconds.

- The pickup will return to the beginning of the current track and playback will continue. Pressing the button several times will return the pickup the corresponding number tracks.

④ **Audible quick search** .... **Manual Search**

- Using this function, you can cue to a desired point within a track, either in the forward or reverse direction.
- Release the manual search button (|◀◀\◀◀ or ▶▶/▶▶|) when the desired point has been reached. Normal playback then continues.

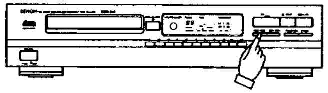
(1) Manual Search Forward



(▶▶/▶▶|)

1. Press the manual search forward button (▶▶/▶▶|) during playback in for more than 0.5 seconds. Playback of the track is sped up.
- As a reference, the current track number and elapsed playback time within the track are displayed.
- Manual search forward is approximately three times faster when engaged during the pause state compared to playback. In this case, no sound is heard however.
- If the manual search forward button (▶▶/▶▶|) is kept pressed after the end of the final track on the disc is reached, (JJ) is displayed and manual search stops. To return to another point, press the manual search reverse button (|◀◀\◀◀) until (JJ) disappears.

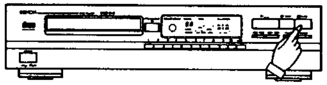
(2) Manual Search in Reverse



(|◀◀\◀◀)

1. Press the manual search reverse button (|◀◀\◀◀) during playback in for more than 0.5 seconds. Reverse playback of the track is sped up.
- As a reference, the current track number and elapsed playback time within the track are displayed.
- Manual search in reverse is approximately three times faster when engaged during the pause state compared to playback. In this case, no sound is heard, however.
- If the manual search reverse button (|◀◀\◀◀) is kept pressed after the beginning of the first track on the disc is reached, (ΓΓ) is displayed and manual search stops. To return to another point, press the manual search forward button (▶▶/▶▶|) until (ΓΓ) disappears.

⑤ **Pausing playback at any point** .... **Pause**



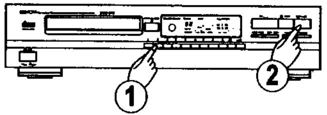
(❚❚ PAUSE)

- Playback can be temporarily halted and then continued from the same point in the track.
1. Press the pause button (❚❚ PAUSE) during the playback.
2. To continue playback, press the play button (▶ PLAY) or the pause button (❚❚ PAUSE) once more.

⑥ **Searching and Pausing at the Beginning of the Track** .... **Pause**

(1) With Direct Search

- In this case, the set pauses at the beginning of the track found with the direct search operation.



(Number buttons) **(❚❚ PAUSE)**

1. Press the number button ● for the desired track.
2. Press the (❚❚ PAUSE) button.
- To start playback, press the (▶ PLAY) or (❚❚ PAUSE) button.

(2) With Program Search

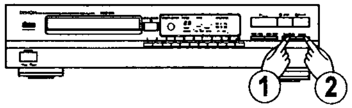
- Press the (❚❚ PAUSE) button after the program search operation is completed. The set will pause at the beginning of the first programmed track.

ADVANCED FUNCTION

- The [FUNCTION] and [ENTER] buttons may be used to perform the following advanced functions.
- A different function in the following cycle may be accessed each time the [FUNCTION] button is pressed:

→ Programming → Repeating playback → Auto space → Time mode → Auto edit

- After the respective functions have been accessed via the [FUNCTION] button, press the [ENTER] button to operate the respective functions.



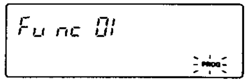
(FUNCTION Button) (ENTER Button)

- Time mode is effective only during play and pause.
- Auto edit is effective only during stop.

① Playing Specific Tracks in a Specific Order .... **Programmed Play**

- With this function, you can choose any of the tracks on the disc and program them to play in any order.
- Programming is possible with the disc holder open.
- Up to 20 tracks can be programmed.
- The programmed tracks are shown on the calendar.

(1) Programming



- Press the [FUNCTION] button to display "Func01" on the TRACK NO. and TIME display.
- The "PROG" indicator blinks when the last mode was normal playback mode.
- Press the [ENTER] button within four seconds after "Func01" has been accessed to set the programming function, and the "PROG" indicator will light.
- Then use the number buttons and the +10 button to program the tracks. For example, to program tracks 3, 12 and 7, press [3], [+10], [2] and [7]. The corresponding track number light on the calendar each time a track is programmed, the track number is displayed on the TRACK NO. display, and the total playing time of the programmed tracks is displayed on the TIME display. A few seconds after the last track has been programmed, the total number of tracks programmed is displayed on the TRACK NO. display and the total playing time of the programmed tracks is displayed on the TIME display.

(2) Playing the Programmed Tracks

- Press the (▶ PLAY) button to play the tracks in the programmed order.

(3) Clearing the Program

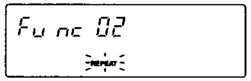
- Press the [FUNCTION] button to display "Func01" on the TRACK NO. and TIME display. The "PROG" indicator will light.
- Press the [ENTER] button within four seconds, and the "PROG" indicator will blink. Four seconds after "Func01" lights, "PROG" goes out, and the program is cleared.
- The program is also cleared when the [OPEN / CLOSE] button is pressed.
- When the program has been cleared during programmed play, playback will continue from the track presently being played back to the last track.

NOTES

- If programming is done in the play or pause mode, the track currently playing is programmed at the first position. Other tracks can be added to the program, but the number of programmed tracks and the playing time will not be displayed.
- Direct search is not possible during programmed play. If the number buttons are pressed, that track is added to the end of the program.
- Programming is possible with the disc holder open. Track numbers greater than the number of tracks recorded on the disc can be programmed, but will be automatically cleared before playback begins.
- The remaining time per track will only be displayed for track numbers 1 through 20.
- The total program time and remaining program time are not displayed if tracks greater than track number 20 are programmed.
- During the four seconds in which "Func01" is lit, the [ENTER] button can be used to alternately select Accept Programming Mode and normal playback.

② Repeating Playback .... **Repeat**

(1) Repeating Playback



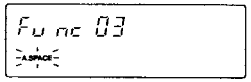
- Press the [FUNCTION] button to display "Func02" on the TRACK NO. and TIME display.
- The "REPEAT" indicator blinks when the last mode was normal playback mode.
- Press the [ENTER] button within four seconds after "Func02" has been accessed to set the repeat function, and the "REPEAT" indicator will light.
- Then press the [PLAY] button. Playback of all tracks are repeated.
- Repeating playback may also be set during playback.
- When the repeat function has been set during programmed playback, playback of the programmed track is repeated.

(2) Canceling repeating playback

- Press the [FUNCTION] button to display "Func02" on the TRACK NO. and TIME display. The "REPEAT" indicator will light.
- The "REPEAT" indicator blinks when the [ENTER] button is pressed within four seconds. Four seconds after "Func02" lights, "REPEAT" goes out, and repeating playback is canceled.
- During the four seconds in which "Func02" is lit, the [ENTER] button can be used to alternately select Accept Repeating Playback Mode and normal playback.

③ Inserting blanks between tracks .... **Auto Space**

- This is a convenient feature that will insert 4-second blanks between tracks, which can be used when recording compact discs on tape.



(1) Auto Space

- Press the [FUNCTION] button to display "Func03" on the TRACK NO. and TIME display.
- The "A.SPACE" indicator blinks when the last mode was normal playback mode.
- Press the [ENTER] button within four seconds after "Func03" has been accessed to set the Auto Space function, and the "A.SPACE" indicator will light.
- Then press the [PLAY] button.

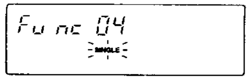
(2) Canceling Auto Space

- Press the [FUNCTION] button to display "Func03" on the TRACK NO. and TIME display. The "A.SPACE" indicator will light.
- Press the [ENTER] button within four seconds, and the "A.SPACE" indicator will blink. Four seconds after "Func03" lights, "A.SPACE" goes out, and Auto Space is canceled.
- During the four seconds in which "Func03" is lit, the [ENTER] button can be used to alternately select whether or not Accept Auto Space is effective.
- Although 4-second blanks are inserted between tracks, this additional time is not reflected by the indication on the time remaining display or time display when the Auto Edit function is engaged.

④ Time Mode

- This function is used to select the desired indication on the TIME display. The indication on this display will change each time the function is chosen. Normally, the elapsed playback time of the current track is displayed.
- When SINGLE is displayed, the remaining time of the current track is displayed.
- When TOTAL is displayed, total playing time of remaining tracks is displayed.
  However, when programmed play is in progress, the total remaining time of the program is displayed.

(1) Time Mode Selection



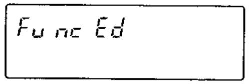
- Press the [FUNCTION] button to display "Func04" on the TRACK NO. and TIME display. If the last mode was "normal", the "SINGLE" indicator will blink. When in "SINGLE" mode, the "SINGLE" indicator lights. When in "TOTAL" mode, the "TOTAL" indicator lights.
- Press the [ENTER] button within four seconds after "Func04" has been accessed to select functions in the cycle "SINGLE" "TOTAL" normal.
- "SINGLE" mode is in effect when the "SINGLE" indicator lights.
- "TOTAL" mode is in effect when the "TOTAL" indicator lights.
- Normal mode is in effect when neither "SINGLE" nor "TOTAL" lights.

→ SINGLE → TOTAL → normal

⑤ Auto Edit

- The tracks on a CD are automatically split into two halves, Side A and Side B, like an analog disc, with the division at the place between tracks which is closest to 1/2 the total playing time, and with the tracks remaining in the same order.

(1) Setting Auto Edit

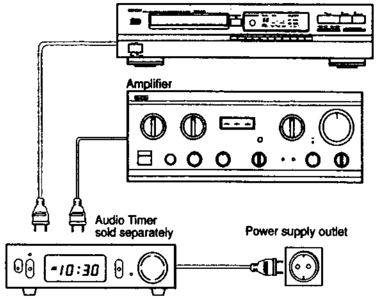


- Press the [FUNCTION] button to display "FuncEd" on the TRACK NO. and TIME display.
- Press the [ENTER] button within four seconds after "FuncEd" is accessed to set the Auto Edit function.
- The total playing time for the first half and the track numbers on the calendar are displayed for approximately 2 seconds. Next, the same is done for the second half, after which the unit is automatically set to the pause mode at the beginning of the first track. When the [PLAY] or [PAUSE] button is pressed, playback begins, and the unit is automatically set to the pause mode at the beginning of the first track of the second half which was previously displayed. When the [PLAY] or [PAUSE] button is pressed again, playback begins, and the unit is automatically set to the stop mode at the end of the last track on the disc.
- This function will only work for discs with a total of 20 tracks or less. Also, when this function is used the mode is automatically set to the program mode, so direct search is not possible.
- The auto edit function is cleared when the [STOP] button is pressed.
- The data for the total playing time recorded on the disc and the actual total playing time of the tracks differ, so there may be a difference between the time displayed in the stop mode (the total playing time) and the total of the times of the first and second halves in the auto edit mode (about 2 seconds).

TIMER-CONTROLLED PLAYBACK

- **Operation**
  1. Turn on the power of all system components.
  2. Set the input selector on the amplifier to correspond to the inputs the CD player is connected to.
  3. Make sure a disc has been loaded in the disc holder.
  4. Check the time on the timer and then set the desired turn-on time.
  5. Turn the audio timer ON. Power is turned off automatically in all components connected to the timer.
  6. When the preset turn-on time is reached, power is turned on in the system components, and CD playback starts form the first track.

- **Connection**

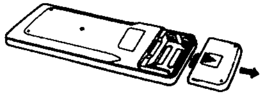


PLAYBACK USING THE REMOTE CONTROL UNIT

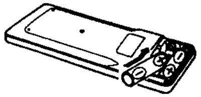
If the remote control for Denon receivers and amplifiers or a separately purchased remote control unit (RC241) is used, the DCD315 can be operated from the optimum listening position.

(1) Inserting the dry cell batteries

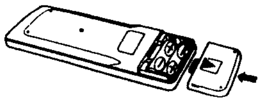
1. Remove the battery cover on the back of the remote control unit.



2. Insert dry cell batteries with correct polarity as indicated inside the battery compartment.



3. Replace the battery cover.

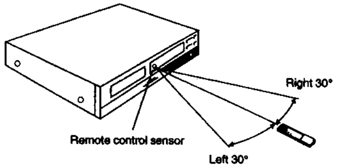


Notes on the Batteries

- The remote control unit uses standard size AA dry cell batteries.
- The batteries will need to be replaced approximately once a year. Replacement may be necessary earlier depending on how much the remote control unit is used.
- If, in less than a year from the time new batteries were inserted, the remote control fails to operate the CD player from a near-by position, it is time to replace the batteries.
- Insert the batteries properly, following the polarity diagram inside the battery compartment, in other words make sure (+) and (-) terminals are properly aligned.
- Batteries are prone to damage and leakage. Therefore:
  - Do not combine new batteries with used ones.
  - Do not combine different types of batteries.
  - Do not jumper opposite poles of the batteries, expose them to heat, break them open nor expose of them in open fire.
- If the remote control unit is not to be used for a long period of time, remove the batteries from the unit.
- If the batteries have leaked, remove any traces of battery fluid from the battery compartment, wiping thoroughly with a dry cloth. Then insert new batteries.

(2) Directions for Use

- Operate the remote control unit while pointing it towards the remote control sensor on the CD player (see below). When a remote control signal is received, the remote control indicator on front of the CD player lights briefly.
- The remote control unit can be used at a distance up to 8 meters in a straight line from the CD player. This distance decreases if there are obstructions blocking the signal path or when the remote control unit is operated at an angle from the remote control sensor.
- The buttons on the remote control unit have identical functions with those on the CD player. However, the following functions cannot be remote controlled: Power ON/OFF.



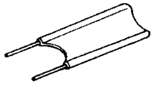
Notes on Operation

- Do not press identical buttons on the CD player and remote control unit simultaneously as this may cause malfunction.
- The remote control unit may be difficult to operate if the remote control sensor is exposed to strong light, such as direct sunlight or light from fluorescent lamps, or if there are obstacles between the remote control unit and the sensor.
- **Direct track selection**
  Using the track number buttons (1 ~ 10, +10), tracks can be directly assigned for playback.
- **Track selection while programming**
  Press the program button (PROG) and then the track numbers you wish to enter into the memory.
  Example: PROG → 3 → +10 & 1 → 5 ...
  (Tracks 3, 11, 5 and so on are entered into the memory.)
  Memorized tracks are erased by pressing the Direct button (DIRECT).
- **Correct use of the track number buttons**
  Direct selection of single-digit tracks is easy by just pressing the desired track number button. For tracks with numbers from 11 and on, first press the +10 button and then a single-digit button. E.g., to select track 22, press the +10 button twice and then press the 2 button.

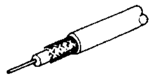
INSTALLATION PRECAUTIONS

The CD player uses a microcomputer for controlling internal electronic circuits. In the event that the player is used while a near-by tuner or TV is turned on, although unlikely, interference could occur either in the sound from the tuner or the picture of the TV. To avoid this, please take the following precautions:

- Keep the CD player as far away from the tuner or TV set as possible.
- Keep the power cable and connecting cable of the CD player separate from the antenna wires of the tuner and TV.
- Interference is particular likely to occur when an indoor antenna or a 300-ohm feeder cable is used. Thus, use of an outdoor antenna and 75-ohm coaxial cable is strongly recommended.



300-ohm feeder cable



75-ohm coaxial cable

TROUBLESHOOTING

If the CD player does not seem to be functioning properly, check the following:

Disc holder does not open or close.
- Is the power on?

When a disc is loaded, 00 00 00 is displayed.
- Is the disc loaded properly? .... See page 6

When the play button (▶ PLAY) is pressed, playback does not start.
- Is the disc dirty or scratched? .... See page 4

There is no sound, or it is distorted.
- Is the output cord properly connected to the amplifier .... See page 4
- Have the amplifier controls been set correctly?

A specific section of the disc will not play.
- Is the disc dirty or scratched? .... See page 4

Programmed playback does not work.
- Have programming been properly done? .... See pages 8, 10

Incorrect operation when buttons on the remote control are pressed.
- Is the remote control unit being operated too far from the CD player? .... See page 10
- Are there obstacles blocking the ray?
- Is the remote control sensor exposed to strong light?
- Are the batteries exhausted?

SPECIFICATIONS

AUDIO	DCD-315
No. of Channels:	2 channels
Frequency Response:	2 ~ 20,000 Hz
Dynamic Range:	95 dB
Signal-to-noise Ratio:	104 dB
Harmonic Distortion:	0.004% (1 kHz)
Separation:	93 dB (1 kHz)
Wow & Flutter:	Below measurable limit: (±0.001% W.peak)
Output Voltage:	2.0 V
DISCS	Compact Disc format
GENERAL CHARACTERISTICS	
Power Supply:	50 Hz, ~ 230 V
Power Consumption:	10 W
Dimensions:	434 (17-3/32") W x 105 (4-1/8") H x 279 (11-1/32") D mm
Weight:	3.5 kg

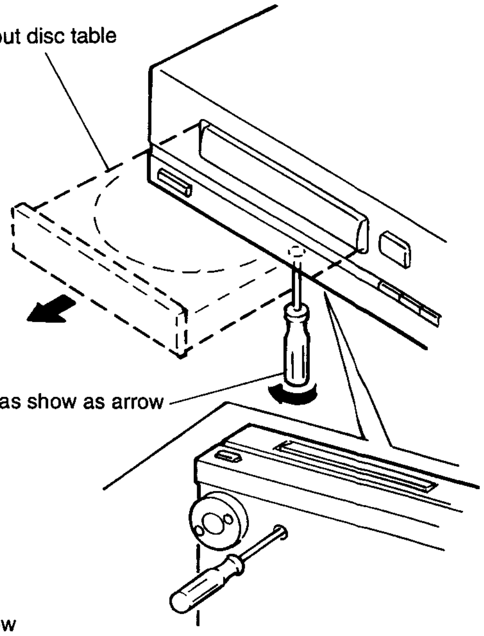
FUNCTIONS AND DISPLAY	
Functions:	Automatic search, programmed playback, repeat playback, manual search, auto space, time mode, auto edit
Display:	Track number, time, music calendar, emphasis feature and engaged modes

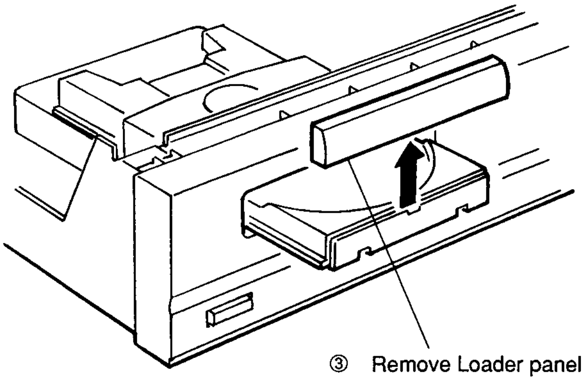
*Design and specifications are subject to change without notice in the course of product improvement.

DISASSEMBLY

1. LOADER PANEL

As removing front panel in power OFF status, use a screw driver to insert set Loader panel below hole and rotate counterclockwise ①, pull out disc table ②, then detach Loader panel ③.

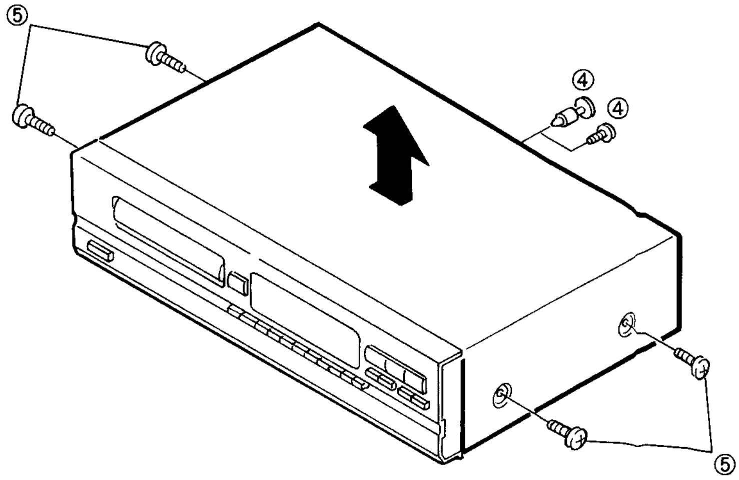

② Pull out disc table
① Rotate as show as arrow


③ Remove Loader panel as show as arrow

* Keep the set horizontally.

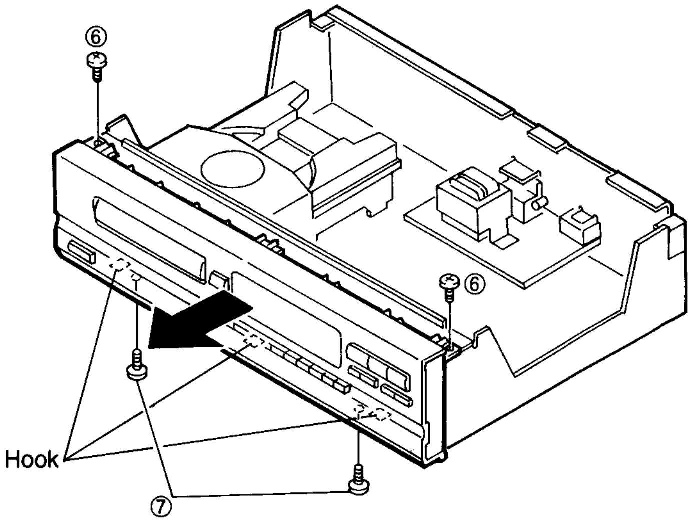
2. TOP COVER

1. Remove a push rivet ④.
   (Europe model: last four figures of Ser. No. 0001~06000)
   Remove a screws ④.
   (Europe model: last four figures of Ser. No. 06001and after)
   (U.K model: last four figures of Ser. No. 0001 and after)
2. Remove 4 screws ⑤.



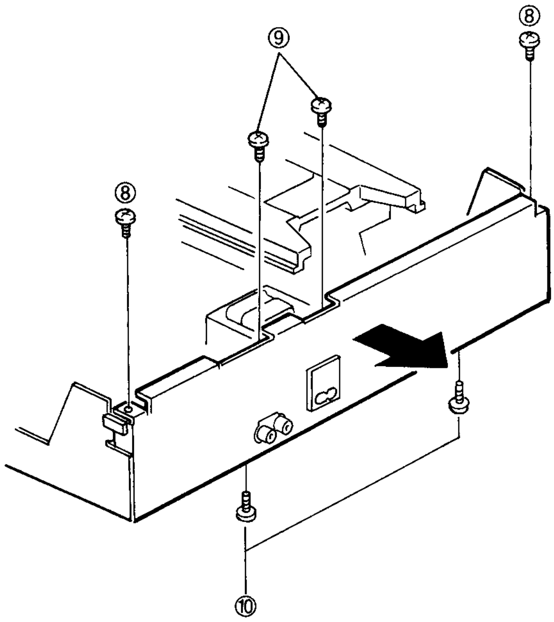
3. FRONT PANEL

1. Remove 2 screws ⑥ and undo hooks at 3 places.
2. Remove 2 screws ⑦ .



4. REAR PANEL

1. Remove 2 screws ⑧.
2. Remove 2 screws ⑨.
3. Remove 2 screws ⑩.



CONFIRMING METHOD OF SERVO

A microcomputer adopted to this unit has the service programs so as to perform confirming more easily with the operation buttons. Digital servo adopted to this unit is became automatic adjustment status in focus gain and tracking gain.

1. Actuating the Service Program

(1) Press disc holder button, turn power switch OFF.

(2) Shortcircuit the main unit CN505 pin1 (SWOP) to pin3 (GND).
Note: don't touch another connector pin.

(3) Turn power switch ON.
(Service program start actuates and displays track No. 01)

Note: The operation buttons do not function when service program actuates.

2. Operation Function at Service Program Actuation

Button Operation	Operation Function	Explanation
▲ OPEN/CLOSE	Opens or closes disc holder button.	● Open or closes only when disc is stopped. ● Operate other keys after open or close.
■ STOP	Stops system function.	● Displays track number 01. ● Press when adjustment completed or do it again.
▶ PLAY	Starts Focus servo and disc turns.	● Press when tracking adjustment. ● When completed, displays track number 02.
‖ PAUSE	Starts Focus servo, Tracking servo, Slide servo and Spindle servo.	● Pressing PLAY button, starts Tracking servo and slide servo. ● When completed, displays track number 03 .
1	Displays a result of Focus gain automatic adjustment.	● After completed PAUSE operation, pressing Button 1 of 10-key indicates a result of Focus gain automatic adjustment. ● When completed, Display shows: TRACK TIME 1- XXMXXS TIME display shows automatic adjustment value. Displays: 01M27S~00M01S or EEM01S
2	Displays a result of Tracking gain automatic adjustment.	● After completed PAUSE operation, pressing Button 2 of 10-key indicates a result of Tracking gain automatic adjustment. ● When completed, Display shows: TRACK TIME 2- XXMXXS TIME display shows automatic adjustment value. Displays: 01M27S~00M01S or EEM02S
Other Buttons	Unable to obtain normal function.	● Never attempt to operate the buttons other than the above. ● If the buttons are erroneously pressed, promptly turn OFF the power switch.

(Caution)

- During the service program is in operation, do not use remote control.

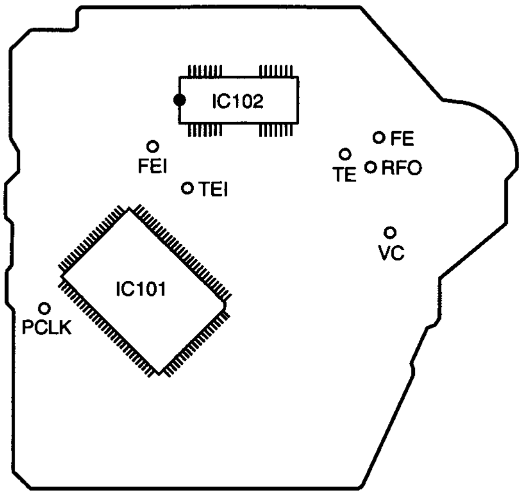
3. Confirming Method

(1) Required Measuring Equipment

1) Dual-trace oscilloscope
2) Test disc: CA-1094

(2) Check Point

CD Mechanical unit PWB (pattern view)



(3) Confirming Procedure

1) Actuate the service program.
2) Check the value of Focus gain automatic adjustment.
3) Check the value of Tracking gain automatic adjustment.
4) Check for Tracking offset.
5) Finish the service program and return the mode to normal operation (turn ON the power switch in normal manner).
6) Check for HF level.

(4) Confirming Focus Gain

1) Press ⏸ PAUSE button. (Track No. indication 03)
2) Press $\boxed{1}$ button. (Track No. indication 1-)
3) Check for automatic adjustment value.
Automatic adjustment value: 00_M82_S ~ 00_M34_S (normal temperature) (Test disc: CA-1094)
01_M04_S ~ 00_M28_S (0°C~40°C)

Note: As it is a possibility of abnormality in pick-up when automatic adjustment value is EE_M01_S or less than 00_M27_S, execute the confirmation for pick-up according to pick-up replacement standard.
If there is no abnormality in pick-up as described in pick-up replacement standard notes, no problem will occur for disc playback even though the automatic adjustment value is EE_M01_S or less than 00_M27_S.

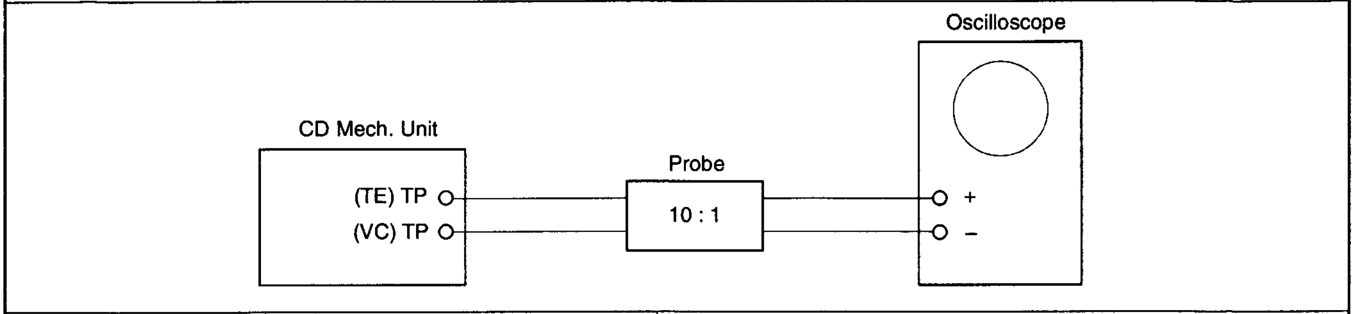
(5) Confirming Tracking Gain

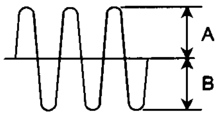
1) Press ⏸ PAUSE button. (Track No. indication 03)
2) Press $\boxed{2}$ button. (Track No. indication 2-)
3) Check for automatic adjustment value.
Automatic adjustment value: 00_M81_S ~ 00_M23_S (normal temperature) (Test disc: CA-1094)
01_M03_S ~ 00_M18_S (0°C~40°C)

Note: As it is a possibility of abnormality in pick-up when automatic adjustment value is EE_M02_S or less than 00_M22_S, execute the confirmation for pick-up according to pick-up replacement standard.
If there is no abnormality in pick-up as described in pick-up replacement standard notes, no problem will occur for disc playback even though the automatic adjustment value is EE_M02_S or less than 00_M22_S.

(6) Confirming Tracking offset (E/F Balance)

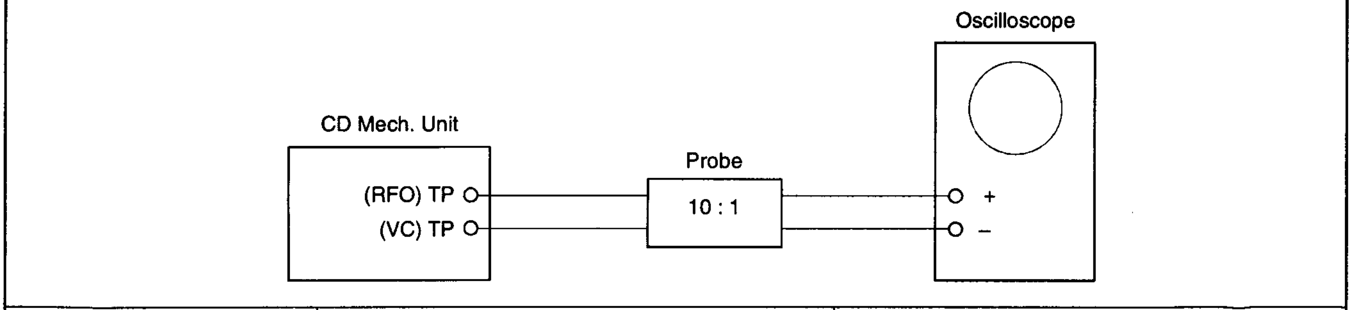
Connection

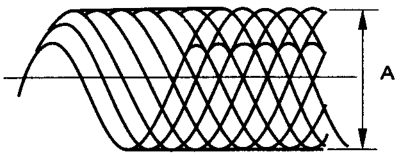
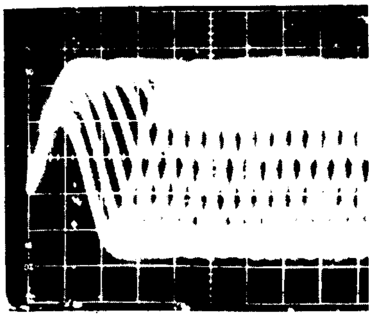

Oscilloscope
CD Mech. Unit
(TE) TP
(VC) TP
Probe
10 : 1
+
–

Osciloscope		Check	Step
V	H	(Oscilloscope)	
0.1v/div	1~2 ms/div	 $\frac{A-B}{A+B} < 20\%$	1. Push ⏏ OPEN/CLOSE button and load disc holder referrence disk. 2. Push ⏏ OPEN/CLOSE button and close disc holder. 3. Push ▶ PLAY button to turn disc. (Displays track number 02) 4. Short (+)(–) of oscilloscope and check the base line. 5. Confirm that upper and lower amplitude of the waveform is symmetric against 0V.

(7) Confirming HF Level

Connection


Oscilloscope
CD Mech. Unit
(RFO) TP
(VC) TP
Probe
10 : 1
+
–

Osciloscope		Check	Step
V	H	(Oscilloscope)	
50mv/div or 20mV/div	0.2µs/div or 0.5µs/div	 A=1.54~0.85V 	1. Push ❚❚ PAUSE button. (Displays track number 03) 2. Check HF level of oscilloscope. 3. Confirm that the waveform is in good shape. (eye pattern in center must be able to discriminate clearly.)
• Set input mode to ALTERNATE or CHOPPER.			

TEST METHOD FOR HEAT RUN MODE

1. Actuate

While hold pushing ▶ , 6 and 7 buttons simultaneously, turn the unit power on. The remote control sensor indicator will light to show that the unit is shifted in Heat Run mode.
Press the ⏏ button to cancel Heat Run mode after loading disc.

2. Operation

1) Heat Run test

During the Heat Run mode to start in Play mode, it makes the unit replays from the first track after opens the loader when finishing with playing last track. After that, this operation is over again. When disc has over 21 tracks, makes the unit to search the last track and set operation times.

2) Chucking test

Press PAUSE button 2 times in the Heat Run mode, it makes the unit opens the loader, turns the servo ON, reads out TOC, operates first track search and does over again.

3) Sound out test

During the Heat Run mode, press +10 button to start in Play mode. If it generates over ± 8 frame sound out, stop the operate and display the error message.

3. Error Message

When the system error occurs in the Heat Run mode, display the error message with TRACK and operated times with TIME.

1) E1 error	Focus Servo does not activate.
2) E2 error	GFS does not drive.
3) E3 eroor	No GFS emit.
4) E4 error	TOC is unreadable.
5) E5 error	Does not turn the Loader switch ON.
6) E6 error	Does not turn the Pick-up inner circle switch OFF.
7) E7 error	Does not turn the Pick-up inner circle switch ON.
8) E8 error	Sound out.

NOTE FOR HANDING OF THE LASER PICK UP

Judgement standards for PICK-UP Replacement

1. PICK-UP REPLACEMENT

The pick-up(PU) replacement must be executed upon the following 4 items and found the abnormality in the PU.
When PU is abnormal, please write PU abnormality cause for PU sign column of connecting prompt report of market quality state clearly.

1) Judgement by confirming of Focus search

(cause of PU abnormality: Focus search does not function.)

2) Judgement by checking of changing PU due to Focus error signal V_{FE}

(cause of PU abnormality: No proper emission of focus error signal (s-curve) V_{FE})

3) Judgement by checking of changing PU due to Tracking Error signal V_{TE}

(cause of PU abnormality: No proper emission of tracking error signal (traverse waveform) V_{TE})

4) Judgement by checking of changing PU due to HF level V_{HF}

(cause of PU abnormality: No proper emission of HF waveform)

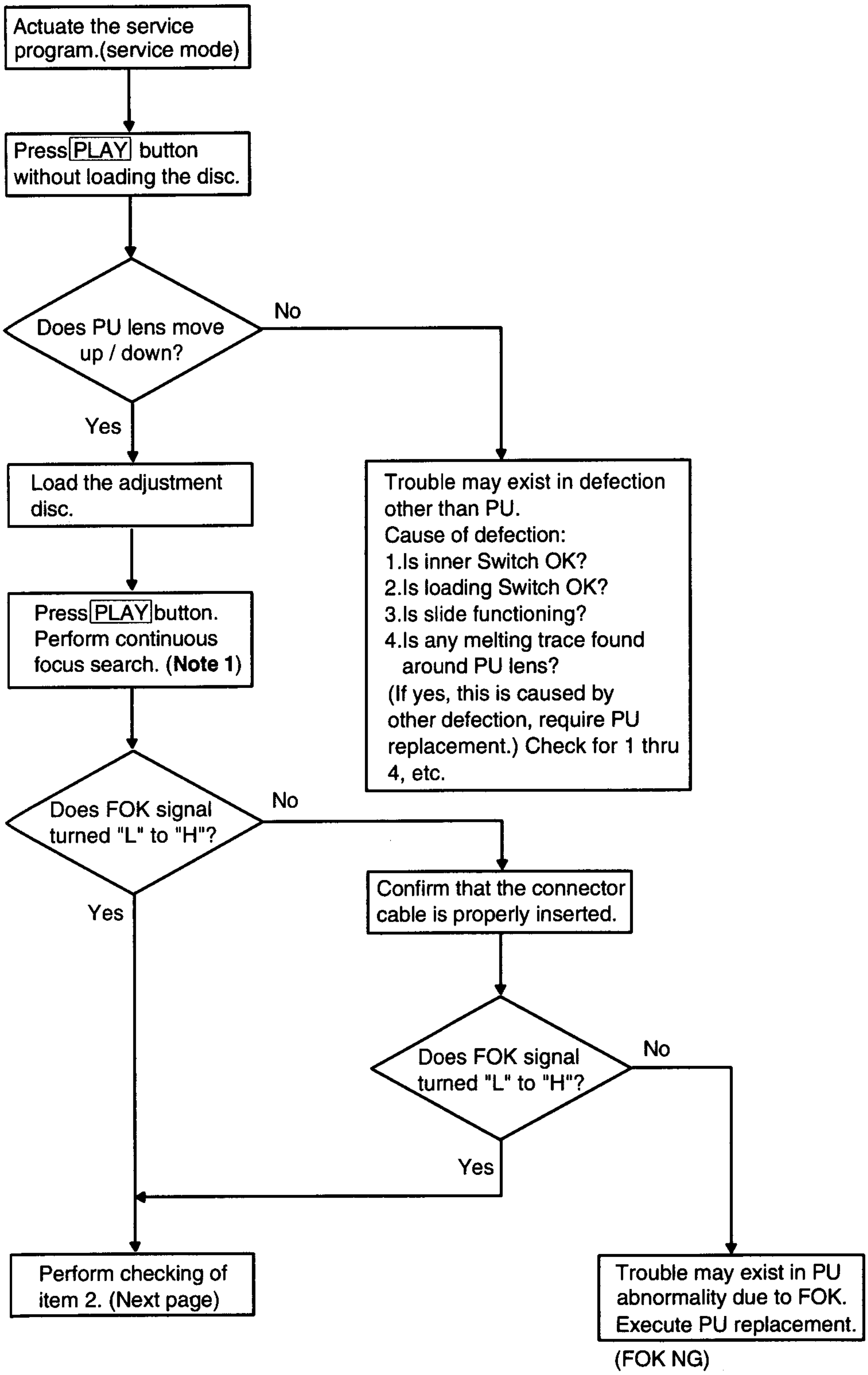
2. DISC TO BE USED FOR CONFIRMATION

Using disc: No. CA-1094

3. OTHER CAUSE OF PU CHANGING

If it happened other cause of PU replacement except the above-mentioned 4 items, please execute PU replacement and write this cause for connecting prompt report of market quality state in detail.

1. Judgement by Confirming of Focus Search (Check for focus search function of PU Lens)



Actuate the service program.(service mode)

Press PLAY button without loading the disc.

Does PU lens move up / down?

Load the adjustment disc.

Press PLAY button. Perform continuous focus search. (**Note 1**)

Does FOK signal turned "L" to "H"?

Trouble may exist in defection other than PU.
Cause of defection:
1.Is inner Switch OK?
2.Is loading Switch OK?
3.Is slide functioning?
4.Is any melting trace found around PU lens?
(If yes, this is caused by other defection, require PU replacement.) Check for 1 thru 4, etc.

Confirm that the connector cable is properly inserted.

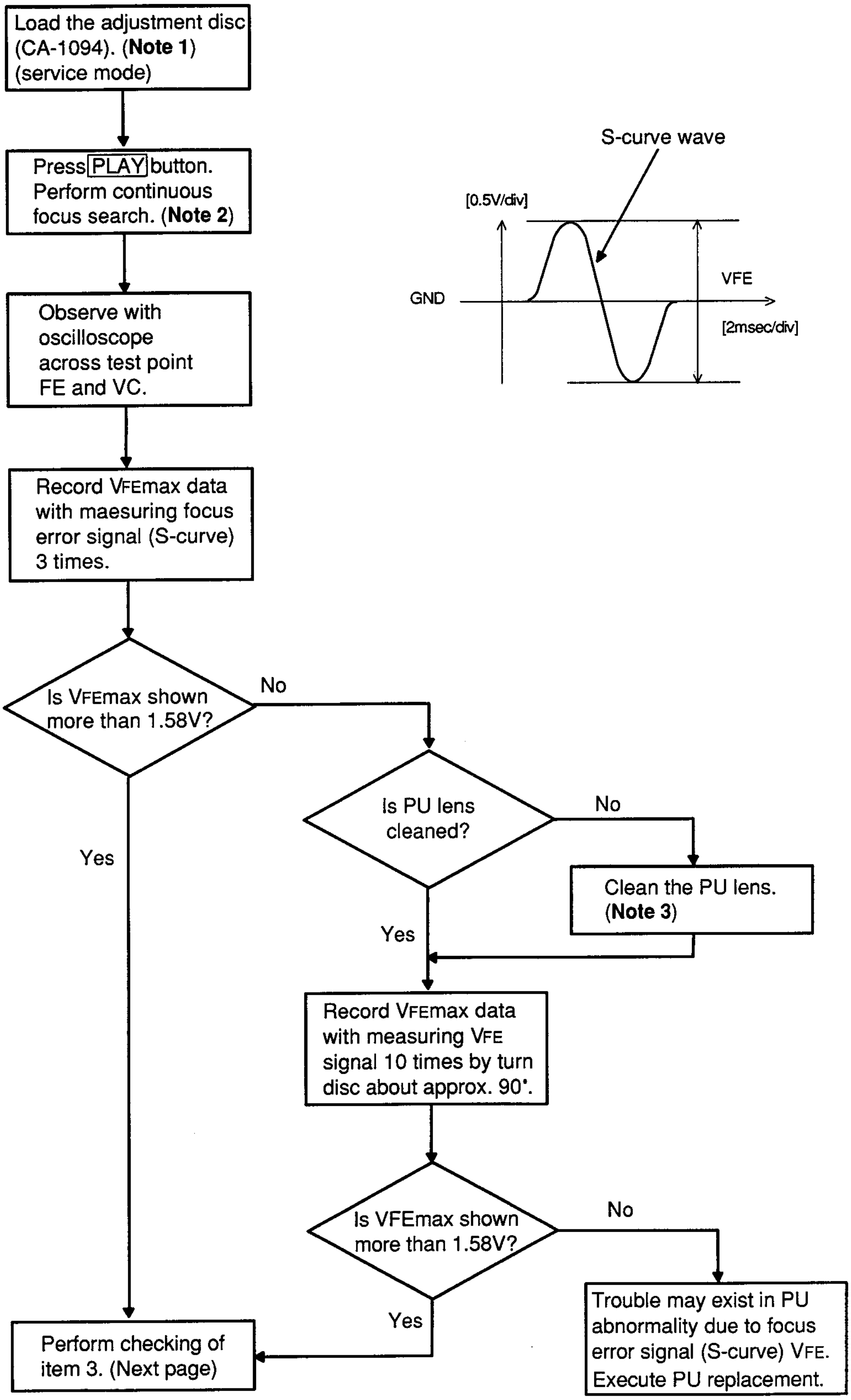
Does FOK signal turned "L" to "H"?

Perform checking of item 2. (Next page)

Trouble may exist in PU abnormality due to FOK. Execute PU replacement.
(FOK NG)

Note 1: Press PLAY button continually in FOK measuring.

2. Judgement by checking of changing PU due to Focus Error signal VFE
(check for proper S-surve)

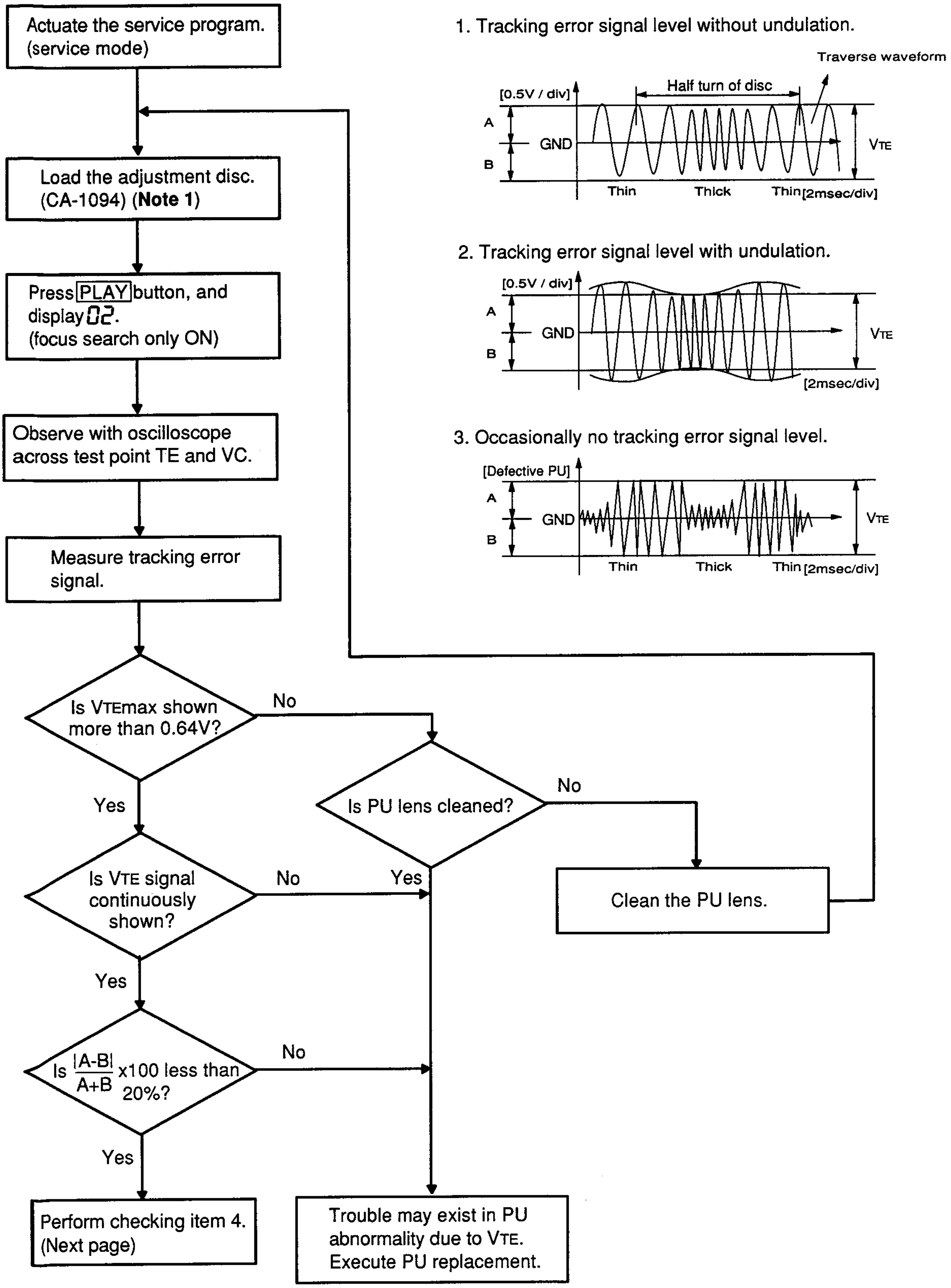

Load the adjustment disc (CA-1094). (Note 1) (service mode)
Press PLAY button. Perform continuous focus search. (Note 2)
Observe with oscilloscope across test point FE and VC.
Record VFEmax data with maesuring focus error signal (S-curve) 3 times.
Is VFEmax shown more than 1.58V?
No
Yes
Is PU lens cleaned?
No
Clean the PU lens. (Note 3)
Yes
Record VFEmax data with measuring VFE signal 10 times by turn disc about approx. 90°.
Is VFEmax shown more than 1.58V?
No
Trouble may exist in PU abnormality due to focus error signal (S-curve) VFE. Execute PU replacement.
Yes
Perform checking of item 3. (Next page)
S-curve wave
[0.5V/div]
GND
VFE
[2msec/div]

Note 1: Adjustment disc (CO-76143) VFE = 1.67 V.

Note 2: Press PLAY button continually in VFE measuring.

Note 3: Gently wipe out the lens surface with a little amount of isopropyl alcohol soaked lens cleaning paper without apply excessive force to the lens.

3. Judgement by checking of changing PU due to Tracking Error Signal VTE (check for proper Traverse waveform)


Actuate the service program.
(service mode)
Load the adjustment disc.
(CA-1094) (Note 1)
Press PLAY button, and
display 02.
(focus search only ON)
Observe with oscilloscope
across test point TE and VC.
Measure tracking error
signal.
Is VTEmax shown more than 0.64V?
No
Yes
Is PU lens cleaned?
No
Yes
Clean the PU lens.
Is VTE signal continuously shown?
No
Yes
Is |A-B| / A+B x100 less than 20%?
No
Yes
Perform checking item 4.
(Next page)
Trouble may exist in PU
abnormality due to VTE.
Execute PU replacement.
Traverse waveform
Half turn of disc
[0.5V / div]
A
GND
B
VTE
Thin
Thick
Thin
[2msec/div]
[0.5V / div]
A
GND
B
VTE
[2msec/div]
[Defective PU]
A
GND
B
VTE
Thin
Thick
Thin
[2msec/div]

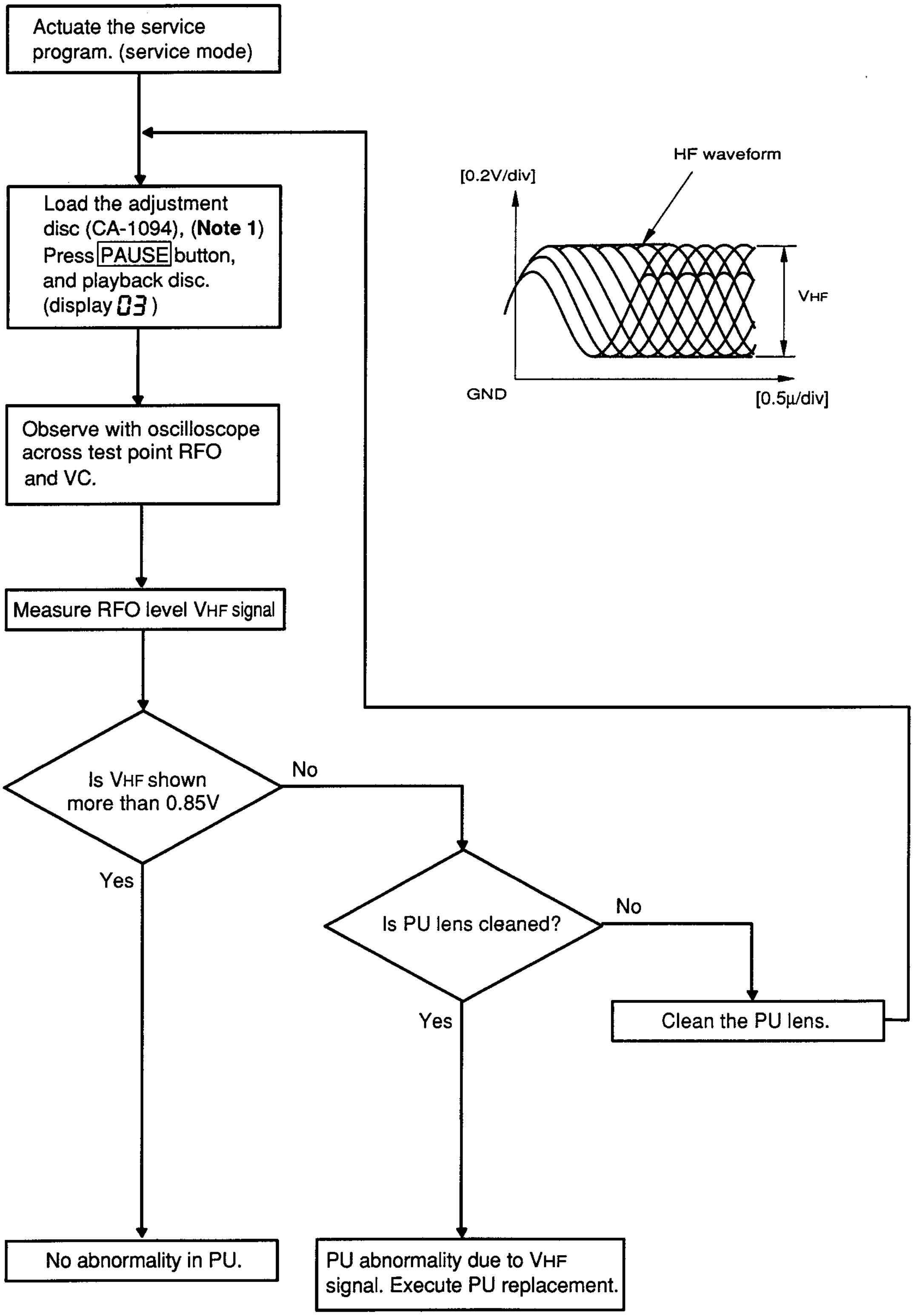
1. Tracking error signal level without undulation.

2. Tracking error signal level with undulation.

3. Occasionally no tracking error signal level.

Note 1: Adjustment disc (CO-76143) VTE = 0.70 V.

4. Judgement by checking of changing PU due to HF level V_{HF} (check for proper HF waveform)

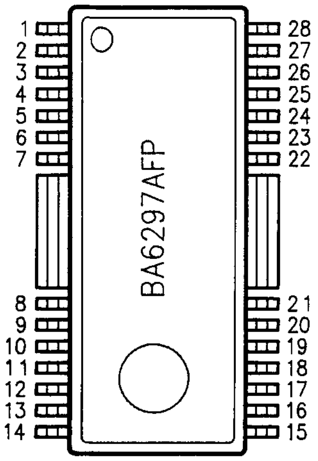

Actuate the service program. (service mode)
Load the adjustment disc (CA-1094), (Note 1) Press PAUSE button, and playback disc. (display 03)
Observe with oscilloscope across test point RFO and VC.
Measure RFO level VHF signal
Is VHF shown more than 0.85V
No
Yes
Is PU lens cleaned?
No
Yes
Clean the PU lens.
No abnormality in PU.
PU abnormality due to VHF signal. Execute PU replacement.
HF waveform
[0.2V/div]
VHF
GND
[0.5μ/div]

Note 1: Adjustment disc (CO-76143) $V_{HF} = 0.85$ V.

SEMICONDUCTORS

● IC's

BA6297AFP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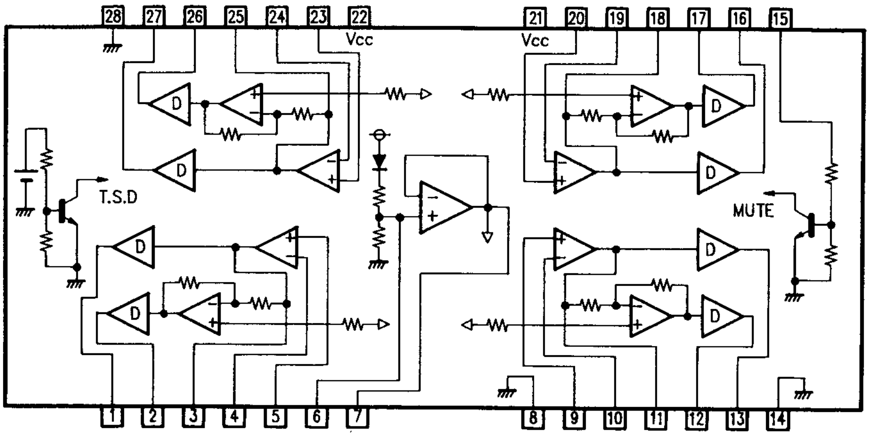
BA6297AFP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23
22
Vcc
21
20
19
18
17
16
15
Vcc
D
T.S.D
MUTE
1
2
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10
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12
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14

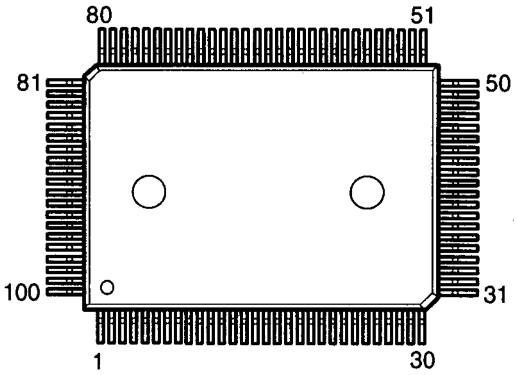
T.S.D; thermal short down
D; driver buffer

BA6297AFP Terminal Function

Pin No.	Symbol	I/O	Function
1		O	CH1 output terminal (+).
2		O	CH1 output terminal (–).
3		O	CH1 Pre-Amplifier output terminal.
4		I	CH1 Pre-Amplifier negative input terminal.
5		I	CH1 Pre-Amplifier positive input terminal.
6			Internal Vref-Amplifier resistor bias terminal.
7		O	Internal Vref-Amplifier output terminal.
8	GND		Vref-Amplifier and constant current ground.
9		I	CH2 Pre-Amplifier positive input terminal.
10		I	CH2 Pre-Amplifier negative input terminal.
11		O	CH2 Pre-Amplifier output terminal.
12		O	CH2 output terminal (–).
13		O	CH2 output terminal (+).
14	GND		CH2 and CH3 driver ground.
15		I	Driver mute control terminal.
16		O	CH3 output terminal (+).
17		O	CH3 output terminal (–).
18		O	CH3 Pre-Amplifier output terminal.
19		I	CH3 Pre-Amplifier negative input terminal.
20		I	CH3 Pre-Amplifier positive input terminal.
21	Vcc		CH2 and CH3 driver power supply.
22	Vcc		CH1 and CH4 driver power supply.
23		I	CH4 Pre-Amplifier positive input terminal.
24		I	CH4 Pre-Amplifier negative input terminal.
25		O	CH4 Pre-Amplifier output terminal.
26		O	CH4 output terminal (–).
27		O	CH4 output terminal (+).
28	GND		CH1 and CH4 driver ground.

Note: Each driver output polarity is reference to Pre-Amplifier output terminal polarity (+).

CXD2515Q

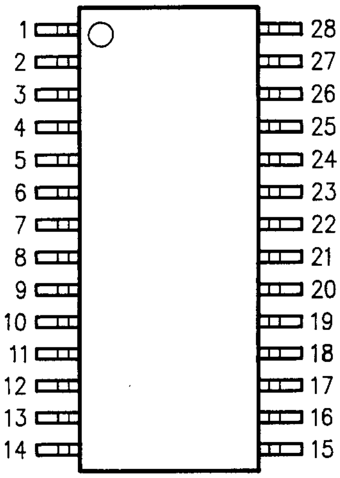


CXD2515Q Terminal Function

Pin No.	Symbol	I/O	Function
1	SRON	O	Sled drive output signal.
2	SRDR	O	Sled drive output signal.
3	SFON	O	Sled drive output signal.
4	TFDR	O	Tracking drive output signal.
5	TRON	O	Tracking drive output signal.
6	TRDR	O	Tracking drive output signal.
7	TFON	O	Tracking drive output signal.
8	FFDR	O	Focus drive output signal.
9	FRON	O	Focus drive output signal.
10	FRDR	O	Focus drive output signal.
11	FFON	O	Focus drive output signal.
12	VCOO	O	Osc. circuit output for analog EFM PLL.
13	VCOI	I	Osc. circuit output for analog EFM PLL.
14	TEST	I	Test terminal, normally GND.
15	DVss	—	Digital ground.
16	TES2	I	Test terminal, normally GND.
17	TES3	I	Test terminal, normally GND.
18	PDO	O	Charge pump output for analog EFM PLL.
19	VPCO	O	PLL charge pump output for variable pitch.
20	VCKI	I	Clock input from external VCO for variable pitch.
21	AVD2	—	Analog power supply.
22	IGEN	I	Power supply terminal for OP amplifier.
23	AVS2	—	Analog ground.
24	ADII	I	A/D converter input terminal.
25	ADIO	O	OP amplifier output terminal.
26	RFDC	I	RF signal input.
27	TE	I	Tracking error signal input.
28	SE	I	Sled error signal input.
29	FE	I	Focus error signal input.
30	VC	I	Middle point voltage input termianl.
31	FILO	O	Filter output for master PLL.
32	FILI	I	Filter input for master PLL.
33	PCO	O	Charge pump output for master PLL.
34	CLTV	I	VCO control voltage input for master.
35	AVSI	—	Analog ground.
36	RFAC	I	EFM signal input.
37	BIAS	I	Asymmetry circuit constant current output.
38	ASY1	I	Asymmetry comparator voltage input.
39	ASY0	O	EFM full swing output.
40	AVDI	—	Analog power supply.

Pin No.	Symbol	I/O	Function
41	DVDD	—	Digital power supply.
42	ASYE	I	Asymmetry circuit ON/OFF.
43	PSSL	I	Mode shift input of audio data output.
44	WDCK	O	48 bit slot D/A interface. word clock.
45	LRCK	O	48 bit slot D/A interface. LR clock.
46	DATA	O	DA16 output at PSSL=1, 48 bit slot serial data at PSSL=0.
47	BCLK	O	DA15 output at PSSL=1, 48 bit slot bit clock at PSSL=0.
48	64DATA	O	DA14 output at PSSL=1, 64 bit slot serial data at PSSL=0.
49	64BCLK	O	DA13 output at PSSL=1, 64 bit slot bit clock at PSSL=0.
50	64LRCK	O	DA12 output at PSSL=1, 64 bit slot LR clock at PSSL=0.
51	GTOP	O	DA11 output at PSSL=1, GTOP output at PSSL=0.
52	XUGF	O	DA10 output at PSSL=1, XUGF output at PSSL=0.
53	XPLCK	O	DA09 output at PSSL=1, XPLCK output at PSSL=0.
54	GFS	O	DA08 output at PSSL=1, GFS output at PSSL=0.
55	RFCK	O	DA07 output at PSSL=1, RFCK output at PSSL=0.
56	C2PO	O	DA06 output at PSSL=1, C2PO output at PSSL=0.
57	XRAOF	O	DA05 output at PSSL=1, XRAOF output at PSSL=0.
58	MNT3	O	DA04 output at PSSL=1, MNT3 output at PSSL=0.
59	MNT2	O	DA03 output at PSSL=1, MNT2 output at PSSL=0.
60	MNT1	O	DA02 output at PSSL=1, MNT1 output at PSSL=0.
61	MNT0	O	DA01 output at PSSL=1, MNT0 output at PSSL=0.
62	XTAI	I	X'tal Osc, circuit input.
63	XTAO	O	X'tal Osc, circuit output.
64	XTSL	I	X'tal select input terminal.
65	DVss	—	Digital ground.
66	FSTI	I	2/3 cycle input of Pin 62, 63.
67	FSTO	O	2/3 cycle output of Pin 62, 63.
68	C4M	O	4.2336 MHz output.
69	C16M	O	16.9344 MHz output.
70	MD2	I	Digital-Out ON/OFF control terminal.
71	DOUT	O	Digital-Out output terminal.
72	EMPH	O	Playback disc emphasis mode output.
73	WFCK	O	WFCK output.
74	SCOR	O	Sub code sync output terminal.
75	SBSO	O	Sub P~W serial output.
76	EXCK	I	Clock input for SBSO read out.
77	SUBQ	O	Sub Q 80 bit output.
78	SQCK	I	Clock input for SQSO read out.
79	MUTE	I	Mute shift terminal.
80	SENS	O	SENS output.
81	XRST	I	System reset.
82	DIRC	I	Using at 1 track jump.
83	SCLK	I	Clock for SENS serial data read out.
84	DFSW	I	DFCT shift terminal.
85	ATSK	I	Anti-shock terminal.
86	DATA	I	Serial data input from CPU.
87	XLAT	I	Latch input from CPU.
88	CLOK	I	Serial data transfer clock input from CPU.

PCM1710U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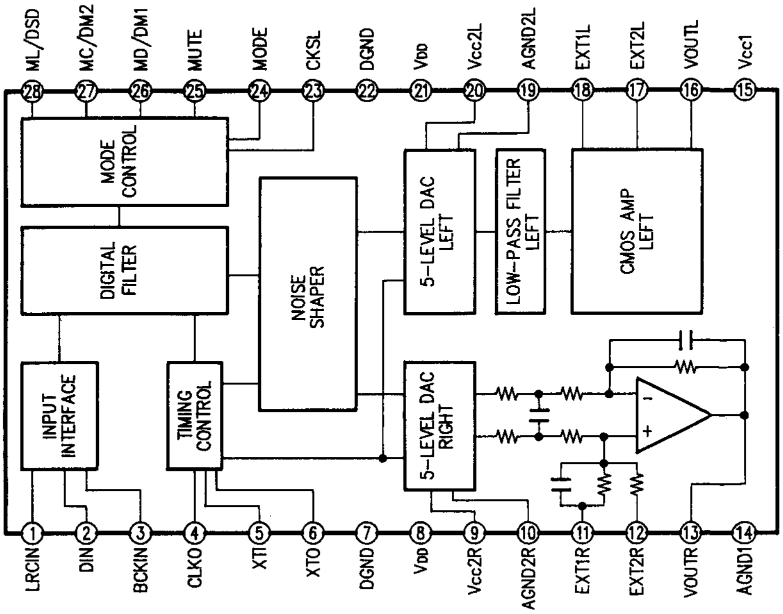
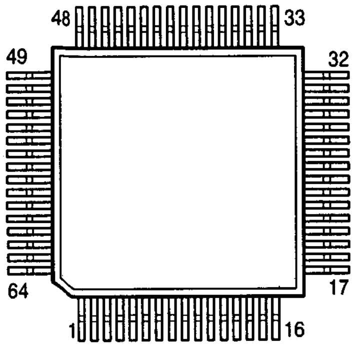

ML/DSD
MC/DM2
MD/DM1
MUTE
MODE
CKSL
DGND
VDD
Vcc2L
AGND2L
EXT1L
EXT2L
VOUTL
Vcc1
MODE CONTROL
DIGITAL FILTER
NOISE SHAPER
5-LEVEL DAC LEFT
LOW-PASS FILTER LEFT
CMOS AMP LEFT
INPUT INTERFACE
TIMING CONTROL
5-LEVEL DAC RIGHT
LRCIN
DIN
BCKIN
CLKO
XTI
XTO
DGND
VDD
Vcc2R
AGND2R
EXT1R
EXT2R
VOUTR
AGND1

PCM1710U Terminal Function

Pin No.	Symbol	I/O	Function
1	LRCIN	I	Reference sample rate clock input (fs).
2	DIN	I	Data input.
3	BCKIN	I	Data bit clock input.
4	CLKO	O	Osc, buffer (XTI inverting) output.
5	XTI	I	Osc, input* (external clock input).
6	XTO	O	Osc, output*.
7	DGND		Digital ground.
8	Vdd		Digital power supply (+5V).
9	VCC2R		Rch analog DAC power supply (+5V).
10	AGND2R		Rch analog DAC ground.
11	EXT1R		Rch amplifier common output.
12	EXT2R		Rch amplifier bias output.
13	VOUTR		Rch voltage output.
14	AGND		Analog ground.
15	VCC		Analog power supply (+5V).
16	VOUTL		Lch voltage output.
17	EXT2L		Lch amplifier bias output.
18	EXT1L		Lch amplifier common output.
19	AGND2L		Lch analog DAC ground.
20	VCC2L		Lch analog DAC power supply (+5V).
21	Vdd		Digital power supply (+5V).
22	DGND		Digital ground.
23	CKSL		System clock selection. H: 384 fs L: 256 fs
24	MODE		Operation mode selection (H/Serial)
25	MUTE		Mute control signal (H: OFF, L: ON).
26	MD/DM1		Control data at serial/De-emphasis at parallel
27	MC/DM2		Control bit clock at serial/De-emphasis at parallel.
28	ML/DSD		Control data wode at serial/Double speed at parallel.

* If XTI input signal is from external clock, XTO terminal must be in OFF status. All input terminal with pull up resister.

HD6433714H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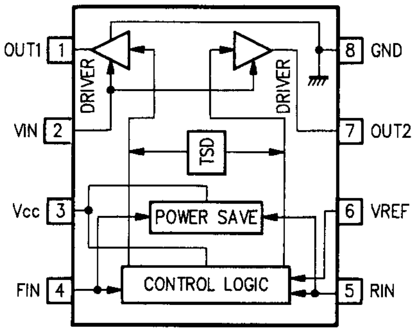
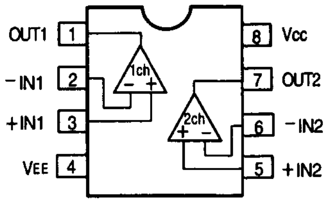
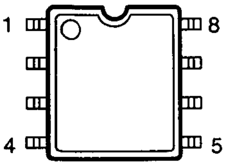

OUT1 1
VIN 2
Vcc 3
FIN 4
8 GND
7 OUT2
6 VREF
5 RIN
DRIVER
DRIVER
TSD
POWER SAVE
CONTROL LOGIC

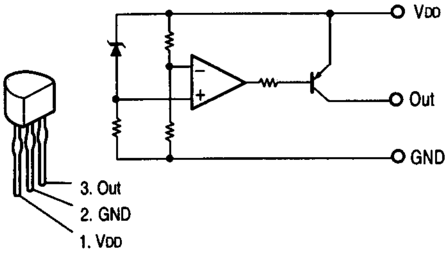
BA15218F


OUT1 1
−IN1 2
+IN1 3
VEE 4
8 Vcc
7 OUT2
6 −IN2
5 +IN2
1ch
2ch

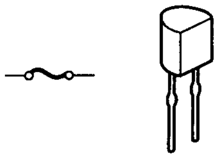
BA6287
BA15218F



PST529C

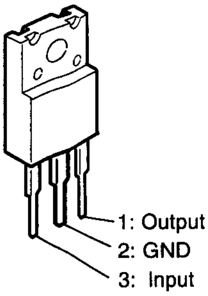

VDD
Out
GND
3. Out
2. GND
1. VDD

● IC PROTECTOR
ICP-N15T

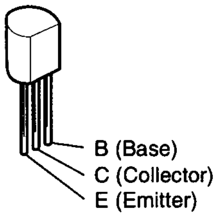


● TRANSISTORS

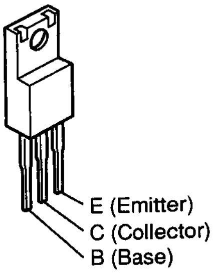
NJM7805FA (S)


1: Output
2: GND
3: Input

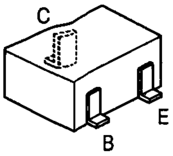
2SA934 (Q)

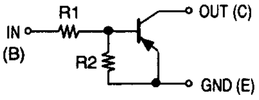

B (Base)
C (Collector)
E (Emitter)

2SD1762 (E/F)

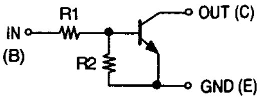

E (Emitter)
C (Collector)
B (Base)

DTA124EK
DTC114EK
DTC144EK
DTC323TK
2SA1362 (Y/GR)

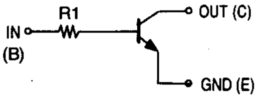



R1
IN
(B)
R2
OUT (C)
GND (E)

	R1	R2
DTA124EK	22K	22K


R1
IN
(B)
R2
OUT (C)
GND (E)

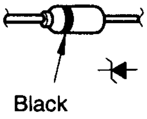
	R1	R2
DTC114EK	10K	10K
DTC144EK	47K	47K


R1
IN
(B)
OUT (C)
GND (E)

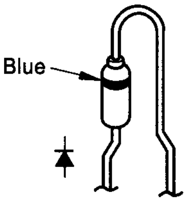
	R1
DTC323TK	2.2K

● DIODES

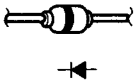
MTZJ4.3A
MTZJ4.7A
MTZJ5.6A
MTZJ6.2A
MTZJ6.8A
MTZJ8.2A
MTZJ22A



1SR35-200A

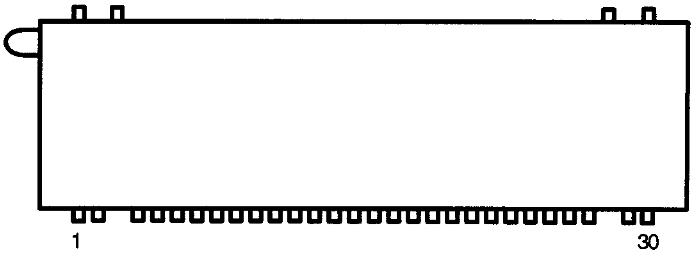


1SS252



● OTHERS

6-ST-33GK (FL)

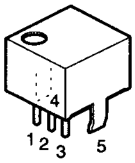


PIN CONNECTION

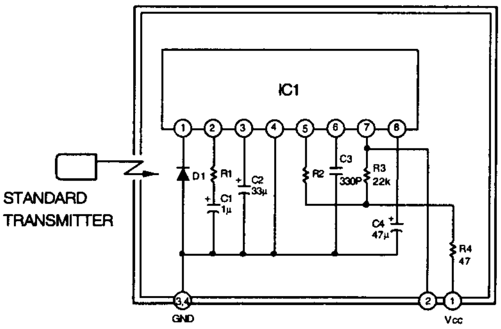
PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
CONNECTION	F1	F1	NP	1G	2G	3G	4G	5G	6G	NX	NX	P16	P15	P14	P13	P12	P11	P10	P9	P8	P7	P6	P5	P4	P3	P2	P1	NP	F2	F2

NOTE: 1) F1,F2 ----- Filament
2) NP --------- No pin
3) DL --------- Datum Line
4) 1G~6G --- Grid
5) NX --------- No extend pin

SBX1610-52 (Remote Control Receiver)



1. Vcc
2. Output
3. GND
4. Case Fin
5. Case Fin


IC1
①
②
③
④
⑤
⑥
⑦
⑧
D1
R1
C1 1μ
C2 33μ
R2
C3 330P
R3 22k
C4 47μ
R4 47
STANDARD TRANSMITTER
3,4
GND
2
1
Vcc

IC1 : CX20106A Chip
D1 : PIN Photodiode Chip
C1,C2,C4 : Aluminum Electrolytic Capacitor
C3 : SL Characteristic±5%
R1 : Gain control resistor
R2 : fo control resistor (Using ±1%)
R (Other than above items)
: ±5%

NOTE FOR PARTS LIST

- Part indicated with the mark " ◉ " are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film ±5%, 1/4W Type in the P.W.Board parts list. (Refer to the Schematic Diagram for those parts.)

WARNING:
Parts marked with this symbol ⚠ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

• Resistors

Ex.:	RN	14K	2E	182	G	FR
	Type	Shape and performance	Power	Resistance	Allowable error	Others

RD : Carbon RC : Composition RS : Metal oxide film RW : Winding RN : Metal film RK : Metal mixture	2B : 1/8W 2E : 1/4W 2H : 1/2W 3A : 1W 3D : 2W 3F : 3W 3H : 5W	F : ±1% G : ±2% J : ±5% K : ±10% M : ±20%	P : Pulse-resistant type NL : Low noise type NB : Non-burning type FR : Fuse-resistor F : Lead wire forming

*** Resistance**

1 8 2 ⇒ 1800 ohm = 1.8 kohm
2 — Indicates number of zeros after effective number.
1 8 — 2-digit effective number.

• Units: ohm

1 R 2 ⇒ 1.2 ohm
2 — 1-digit effective number.
1 R — 2-digit effective number, decimal point indicated by R.

• Units: ohm

• Capacitors

Ex.:	CE	04W	1H	2R2	M	BP
	Type	Shape and performance	Dielectric strength	Capacity	Allowable error	Others

CE : Aluminum foil electrolytic CA : Aluminum solid electrolytic CS : Tantalum electrolytic CQ : Film CK : Ceramic CC : Ceramic CP : Oil CM : Mica CF : Metallized CH : Metallized	0J : 6.3V 1A : 10V 1C : 16V 1E : 25V 1V : 35V 1H : 50V 2A : 100V 2B : 125V 2C : 160V 2D : 200V 2E : 250V 2H : 500V 2J : 630V	F : ±1% G : ±2% J : ±5% K : ±10% M : ±20% Z : +80% −20% P : +100% −0% C : ±0.25pF D : ±0.5pF = : Others	HS : High stability type BP : Non-polar type HR : Ripple-resistant type DL : For charge and discharge HF : For assuring high frequency U : UL part C : CSA part W : UL-CSA type F : Lead wire forming

*** Capacity (electrolyte only)**

2 2 2 ⇒ 2200μF
2 — Indicates number of zeros after effective number.
2 2 — 2-digit effective number.

• Units: μF.

2 R 2 ⇒ 2.2μF
2 — 1-digit effective number.
2 R — 2-digit effective number, decimal point indicated by R.

• Units: μF.

*** Capacity (except electrolyte)**

2 2 2 ⇒ 2200pF = 0.0022μF
2 —(More than 2)— Indicates number of zeros after effective number.
2 2 — 2-digit effective number.

• Units: μF.

2 2 1 ⇒ 220pF
1 —(0 or 1)— Indicates number of zeros after effective number.
2 2 — 2-digit effective number.

• Units: pF.

• When the dielectric strength is indicated in AC, "AC" is included after the dieelectric strength value.

PARTS LIST OF PRINTED WIRING BOARD

1U-2820 CD P.W.B. UNIT ASS'Y

Ref No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP			
IC101	262 2107 907	IC PCM1710U	
IC102	263 0615 902	IC BA15218F	
IC501	262 2136 017	IC HD6433714A65H	
IC502	263 0652 907	IC PST529C	
IC503	499 0150 008	IC SBX1610-52	
IC504	263 0994 908	IC BA6287F	
IC901, 902	268 0073 905	IC ICP-N15T	
TR102	269 0082 902	Transistor DTC114EK	Built in Resistor
TR103	269 0119 901	Transistor DTA124EK	Built in Resistor
TR201, 202	269 0066 902	Transistor DTC323TK	Built in Resistor
TR501~506	269 0054 901	Transistor DTC144EK	Built in Resistor
TR507	274 0120 002	Transistor 2SD1762(E/F)	
TR901, 902	263 0809 006	Transistor NJM7805FA(S)	
TR903	271 0264 901	Transistor 2SA1362(Y/GR)	
TR904	271 0271 907	Transistor 2SA934(Q)	
D101	276 0616 907	Diode 1SS252	
D901~906	276 0553 905	Diode 1SR35-200A	
ZD101	276 0643 996	Zener Diode MTZJ5.6A	
ZD102	276 0637 902	Zener Diode MTZJ6.2A	
ZD501	276 0643 970	Zener Diode MTZJ4.7A	
ZD502	276 0644 924	Zener Diode MTZJ8.2A	
ZD902	276 0644 908	Zener Diode MTZJ6.8A	
ZD903	276 0645 923	Zener Diode MTZJ22A	
RESISTORS GROUP			
R071, 072	247 0018 905	Chip 0ohm,1/10W	RM73B--0R0KT
R076, 077	247 0018 905	Chip 0ohm,1/10W	RM73B--0R0KT
R082	247 0018 905	Chip 0ohm,1/10W	RM73B--0R0KT
R101	247 0006 962	Chip 470ohm,1/10W	RM73B--471JT
R105, 106	247 0009 985	Chip 10kohm,1/10W	RM73B--103JT
⚠ R113	244 2052 973	Metal Oxide Film 560ohm,1w	RS14B3A561JNBST(S)
R119	247 0007 945	Chip 1kohm,1/10W	RM73B--102JT
R120	247 0004 993	Chip 91ohm,1/10W	RM73B--910JT
R124	247 0007 945	Chip 1kohm,1/10W	RM73B--102JT
R125, 126	247 0007 903	Chip 680ohm,1/10W	RM73B--681JT
R201,202	247 0011 944	Chip 47kohm,1/10W	RM73B--473JT
R203~206	247 0009 985	Chip 10kohm,1/10W	RM73B--103JT
R209, 210	247 0011 944	Chip 47kohm,1/10W	RM73B--473JT
R211, 212	247 0009 985	Chip 10kohm,1/10W	RM73B--103JT
R213, 214	247 0009 930	Chip 6.2kohm,1/10W	RM73B--622JT
R501	247 0007 945	Chip 1kohm,1/10W	RM73B--102JT
R502	247 0005 947	Chip 150ohm,1/10W	RM73B--151JT
R503	247 0005 963	Chip 180ohm,1/10W	RM73B--181JT
R504	247 0006 904	Chip 270ohm,1/10W	RM73B--271JT
R505	247 0006 946	Chip 390ohm,1/10W	RM73B--391JT
R506	247 0007 903	Chip 680ohm,1/10W	RM73B--681JT
R507	247 0007 974	Chip 1.3kohm,1/10W	RM73B--132JT
R508	247 0007 945	Chip 1kohm,1/10W	RM73B--102JT
R509	247 0005 947	Chip 150ohm,1/10W	RM73B--151JT
R510	247 0005 963	Chip 180ohm,1/10W	RM73B--181JT
R511	247 0006 904	Chip 270ohm,1/10W	RM73B--271JT
R512	247 0006 946	Chip 390ohm,1/10W	RM73B--391JT
R513	247 0007 903	Chip 680ohm,1/10W	RM73B--681JT
R514	247 0007 974	Chip 1.3kohm,1/10W	RM73B--132JT
R515	247 0007 945	Chip 1kohm,1/10W	RM73B--102JT
R516	247 0005 947	Chip 150ohm,1/10W	RM73B--151JT
R517	247 0005 963	Chip 180ohm,1/10W	RM73B--181JT
R518	247 0006 904	Chip 270ohm,1/10W	RM73B--271JT
R519	247 0006 946	Chip 390ohm,1/10W	RM73B--391JT
R520	247 0014 967	Chip 1Mohm,1/10W	RM73B--105JT
R521	247 0009 985	Chip 10kohm,1/10W	RM73B--103JT
R522	247 0007 945	Chip 1kohm,1/10W	RM73B--102JT
R523	247 0008 944	Chip 2.7kohm,1/10W	RM73B--272JT
R524	247 0009 901	Chip 4.7kohm,1/10W	RM73B--472JT
R526	247 0009 985	Chip 10kohm,1/10W	RM73B--103JT
R527~529	247 0009 985	Chip 10kohm,1/10W	RM73B--103JT
R530	247 0009 985	Chip 10kohm,1/10W	RM73B--103JT
R531	247 0005 963	Chip 180ohm,1/10W	RM73B--181JT
R532~534	247 0009 985	Chip 10kohm,1/10W	RM73B--103JT
R535~538	247 0012 927	Chip 100kohm,1/10W	RM73B--104JT
R539	247 0011 944	Chip 47kohm,1/10W	RM73B--473JT
R540~563	247 0012 927	Chip 100kohm,1/10W	RM73B--104JT
R564	247 0005 963	Chip 180ohm,1/10W	RM73B--181JT
R701, 702	247 0018 905	Chip 0ohm,1/10W	RM73B--0R0KT
R904	247 0012 927	Chip 100kohm,1/10W	RM73B--104JT
R905, 906	241 2396 928	Carbon 100ohm,1/4W	RD14B2E--101JT(S)
R907	247 0012 927	Chip 100kohm,1/10W	RM73B--104JT
R908	247 0007 987	Chip 1.5kohm,1/10W	RM73B--152JT
R910	241 2403 934	Carbon 100kohm,1/4W	RD14B2E--104JT(S)
CAPACITORS GROUP			
C101~104	254 4299 906	Electrolytic 10μF/16V	CE04W1C100MT(SRE)
C105, 106	257 0002 921	Ceramic 10pF/50V	CC73SL1H100DT
C107, 108	254 4299 906	Electrolytic 10μF/16V	CE04W1C100MT(SRE)
C109	254 4299 906	Electrolytic 10μF/16V	CE04W1C100MT(SRE)
C114	254 4193 947	Electrolytic 100μF/16V	CE04W1C101MT(SRA)
C115, 116	257 0001 977	Ceramic 5pF/50V	CC73SL1H5R0CT
C118	254 4193 947	Electrolytic 100μF/16V	CE04W1C101MT(SRA)
C120	257 0001 977	Ceramic 5pF/50V	CC73SL1H5R0CT
C121~123	257 0014 935	Ceramic 0.1μF/25V	CK73F1E104ZT
C124	254 4193 947	Electrolytic 100μF/16V	CE04W1C101MT(SRE)
C125, 126	257 0014 935	Ceramic 0.1μF/25V	CK73F1E104ZT
C127, 128	253 1181 904	Ceramic 0.01μF/50V	CK45F1H103ZT(DD-3)
C129	254 4299 964	Electrolytic 47μF/16V	CE04W1C470MT(SRE)
C201, 202	254 4305 984	Electrolytic 2.2μF/50V	CE04W1H2R2MT(SRE)
C203~206	257 0005 986	Ceramic 330pF/50V	CC73SL1H331JT

Ref No.	Part No.	Part Name	Remarks
C207, 208	254 4299 906	Electrolytic 10µF/16V	CE04W1C100MT(SRE)
C501	254 4299 906	Electrolytic 10µF/16V	CE04W1C100MT(SRE)
C502	257 0012 966	Ceramic 0.01µF/50V	CK73F1H103ZT
C503	254 4299 906	Electrolytic 10µF/16V	CE04W1C100MT(SRE)
C504	257 0012 966	Ceramic 0.01µF/50V	CK73F1H103ZT
C505	254 4299 906	Electrolytic 10µF/16V	CE04W1C100MT(SRE)
C506, 507	254 4299 906	Electrolytic 10µF/16V	CE04W1C100MT(SRE)
C508	254 4305 942	Electrolytic 0.47µF/50V	CE04W1HR47MT(SRE)
C509	257 0012 966	Ceramic 0.01µF/50V	CK73F1H103ZT
C510	254 4299 906	Electrolytic 10µF/16V	CE04W1C100MT(SRE)
C511	254 4254 954	Electrolytic 220µF/16V	CE04W1C221MT(SME)
C701, 702	257 0007 900	Ceramic 0.001µF/50V	CC73SL1H102JT
C901	257 0012 966	Ceramic 0.01µF/50V	CK73F1H103ZT
C902	254 4299 964	Electrolytic 47µF/16V	CE04W1C470MT(SRE)
C903	257 0014 935	Ceramic 0.1µF/25V	CK73F1E104ZT
C904	254 4254 909	Electrolytic 10µF/16V	CE04W1C100MT(SME)
C905	254 4254 954	Electrolytic 220µF/16V	CE04W1C221MT(SME)
C906	254 4255 717	Electrolytic 4700µF/16V	CE04W1C472MC(SME)
C907	257 0012 966	Ceramic 0.01µF/50V	CK73F1H103ZT
C908	254 4258 918	Electrolytic 10µF/35V	CE04W1V100MT(SME)
C909	254 4261 918	Electrolytic 47µF/50V	CE04W1H470MT(SME)
C910	254 4261 921	Electrolytic 100µF/50V	CE04W1H101MT(SME)
C911, 912	254 4258 934	Electrolytic 33µF/35V	CE04W1V330MT(SME)
C913, 914	257 0012 966	Ceramic 0.01µF/50V	CK73F1H103ZT
C916, 917	257 0012 966	Ceramic 0.01µF/50V	CK73F1H103ZT
OTHER PARTS			
CB506	205 0343 032	3P Connector Base(KR-PH)	
CN501	205 0549 085	11P FFC Connector Base	
CN502	205 0408 087	4P JQ Connector Base	
CN503	205 0919 000	4P JQ Socket (Side)	
CN504	205 0549 072	23P FFC Connector Base	
CN505	203 8424 009	5P Connector Cord(AMP)	
CN506	205 0343 032	3P Connector Base(KR-PH)	
CN901	205 0549 085	11P FFC Connector Base	
JK901	204 8487 007	2P Pin Jack	
⚠ JK902	203 3959 003	2P Inlet	
SW501~519	212 5604 910	Tact Switch-TA	
SW520	212 1039 000	1P Push SW	
⚠ T901	233 6159 102	Power Trans	
L101,102	235 0080 901	Inductor(3R3)ST	
L501	235 0049 900	Beads Inductor	
FL501	393 8021 006	VFD	
XL101	399 0112 005	X'TAL(16.9344MHZ)	
XL501	399 0111 909	CST4.23MGW040-TF01	
	412 3100 003	P.W.B Earth	
	461 0877 014	Rubber Sheet	
W-001	203 0503 009	1P SIN Connector Cord	
W-002	001 0063 082	Vinyl Wire	
W-901	203 0503 041	1P SIN Connector Cord	
W-902	001 0063 079	Vinyl Wire	

PARTS LIST OF CD MECHANISM UNIT

SA4 6494 32A CD MECHANISM P.W.B. UNIT ASS'Y

Ref No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP			
IC101	262 1879 003	IC CXD2515Q	
IC102	926 0000 100	IC BA297AFP	
RESISTORS GROUP (not included Carbon Film ±5% 1/4W type)			
R101	247 0010 929	Chip 15kohm,1/10W	RM73B--153J
R102	247 0012 927	Chip 100kohm,1/10W	RM73B--104J
R103	247 0010 929	Chip 15kohm,1/10W	RM73B--153J
R104	247 0011 902	Chip 33kohm,1/10W	RM73B--333J
R105	247 0012 927	Chip 100kohm,1/10W	RM73B--104J
R106, 107	247 0008 960	Chip 3.3kohm,1/10W	RM73B--332J
R108	247 0009 985	Chip 10kohm,1/10W	RM73B--103J
R109	247 0014 967	Chip 1Mohm,1/10W	RM73B--105J
R110	247 0005 905	Chip 100ohm,1/10W	RM73B--101J
R112	247 0007 945	Chip 1kohm,1/10W	RM73B--102J
R113, 114	247 0010 929	Chip 15kohm,1/10W	RM73B--153J
R117, 118	247 0010 929	Chip 15kohm,1/10W	RM73B--153J
R121, 122	247 0010 929	Chip 15kohm,1/10W	RM73B--153J
R123	247 0009 985	Chip 10kohm,1/10W	RM73B--103J
R124	247 0012 927	Chip 100kohm,1/10W	RM73B--104J
R125~127	247 0007 945	Chip 1kohm,1/10W	RM73B--102J
R131	247 0006 920	Chip 330ohm,1/10W	RM73B--331J
R151~156	247 0009 956	Chip 7.5kohm,1/10W	RM73B--752J
R157	247 0011 986	Chip 68kohm,1/10W	RM73B--683J
R158	247 0010 916	Chip 13kohm,1/10W	RM73B--133J
R159	247 0011 902	Chip 33kohm,1/10W	RM73B--333J
R160	247 0010 961	Chip 22kohm,1/10W	RM73B--223J
R161	247 0101 980	Chip 4.7ohm,1/10W	RM73B--4R7J
R162, 163	247 0011 986	Chip 68kohm,1/10W	RM73B--683J
CAPACITORS GROUP			
C101	257 0008 941	Chip (Ceramic) 470pF/50V	CK73B1H471K
C102	257 0014 935	Chip (Ceramic) 0.1μF/25V	CK73F1E104Z
C103	257 0008 941	Chip (Ceramic) 470pF/50V	CK73B1H471K
C105	S11 3515 521	Chip (Ceramic) 4.7μF/16V	
C106	S11 6434 611	Chip (Ceramic) 1μF/16V	
C107	S11 6450 511	Chip (Ceramic) 2.2μF/16V	
C108	257 0013 907	Chip (Ceramic) 0.047μF/50V	CK73F1H473Z
C109	257 0009 908	Chip (Ceramic) 1500pF/50V	CK73B1H152K
C110	S11 6301 700	Chip (Ceramic) 4700pF/50V	
C111	257 0004 961	Chip (Ceramic) 100pF/50V	CC73SL1H101J
C112, 113	257 0014 935	Chip (Ceramic) 0.1μF/25V	CK73F1E104K
C123	257 0012 966	Chip (Ceramic) 0.01μF/50V	CK73F1H103Z
C124	S11 6400 511	Chip (Ceramic) 0.47μF/25V	
C151, 152	257 0008 967	Chip (Ceramic) 680pF/50V	CK73B1H681K
C153	257 0014 935	Chip (Ceramic) 0.1μF/25V	CK73F1E104K
C154	257 0014 906	Chip (Ceramic) 0.33μF/25V	CK73F1E334K
C155, 156	257 0008 967	Chip (Ceramic) 680pF/50V	CK73B1H681K
C157, 158	257 0012 982	Chip (Ceramic) 0.022μF/50V	CK73F1H223Z
C159	S11 6302 300	Chip (Ceramic) 0.015μF/50V	CK73B1H153K
C160	257 0012 953	Chip (Ceramic) 6800pF/50V	CK73F1H682Z
C161	257 0014 935	Chip (Ceramic) 0.1μF/25V	CK73F1E104Z
OTHER PARTS			
CN101	S15 6886 511	23P Connector Base	
CN102	S15 6879 511	12P Connector Base	
S101	S15 7208 511	Leaf switch(LIMIT)	

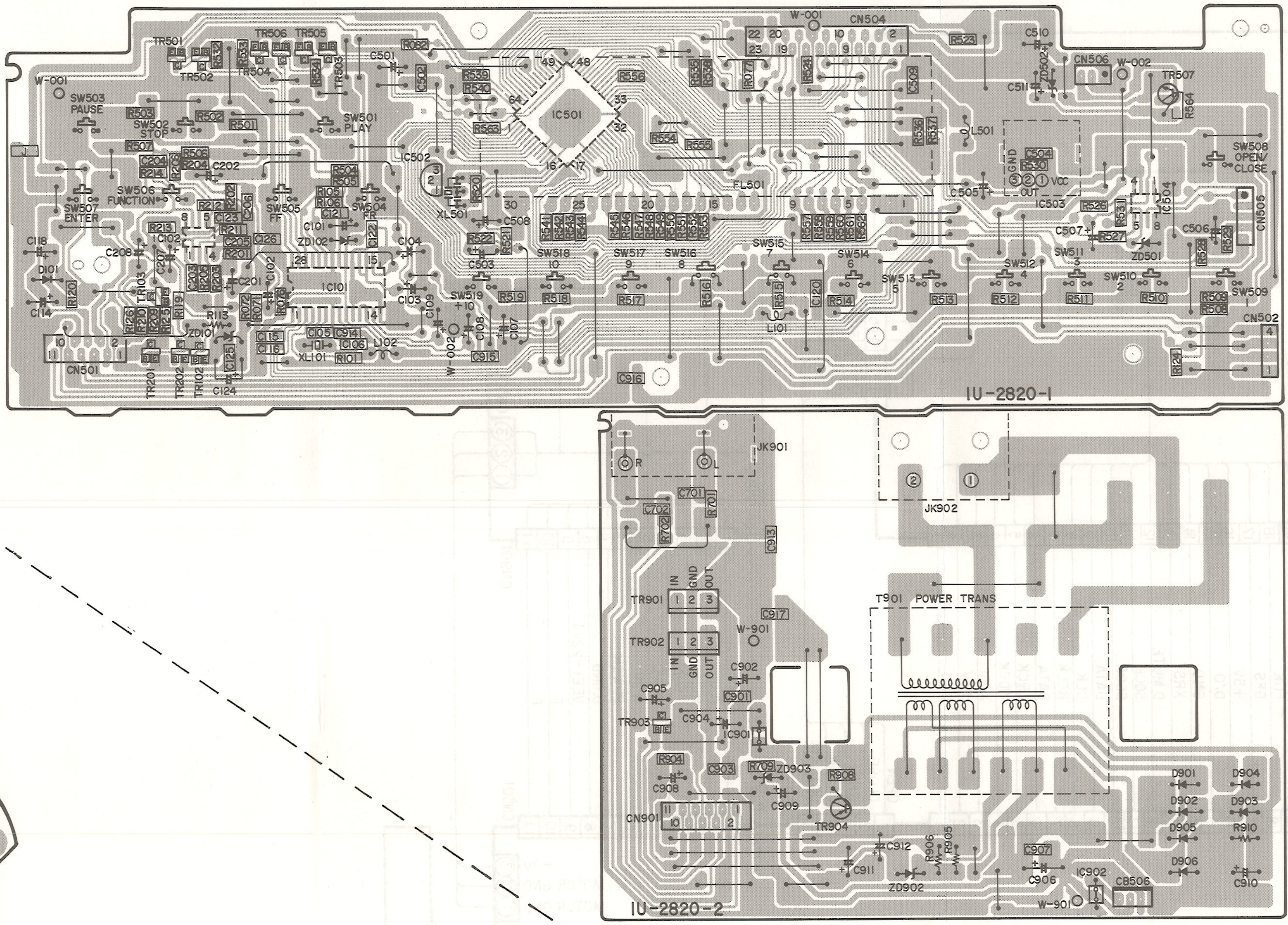
S16 4572 111 LOADING P.W.B. UNIT ASS'Y

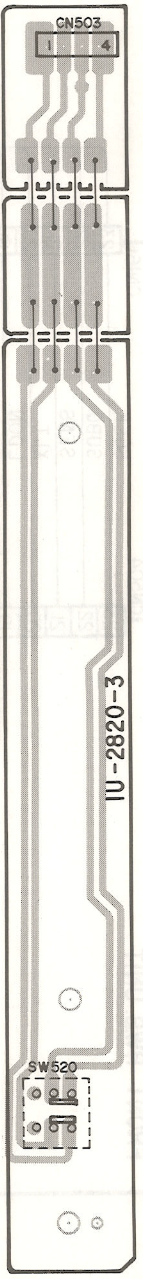
Ref No.	Part No.	Part Name	Remarks
OTHER PARTS			
S151	S15 7208 511	Leaf Switch(LIMIT)	
S152	S15 7208 511	Leaf Switch(LIMIT)	
CN151	S15 6894 311	5P Connector Base(L Type)	

PRINTED WIRING BOARD

1 2 3 4 5 6 7 8

1U-2828 CD P.W.B. UNIT ASS'Y

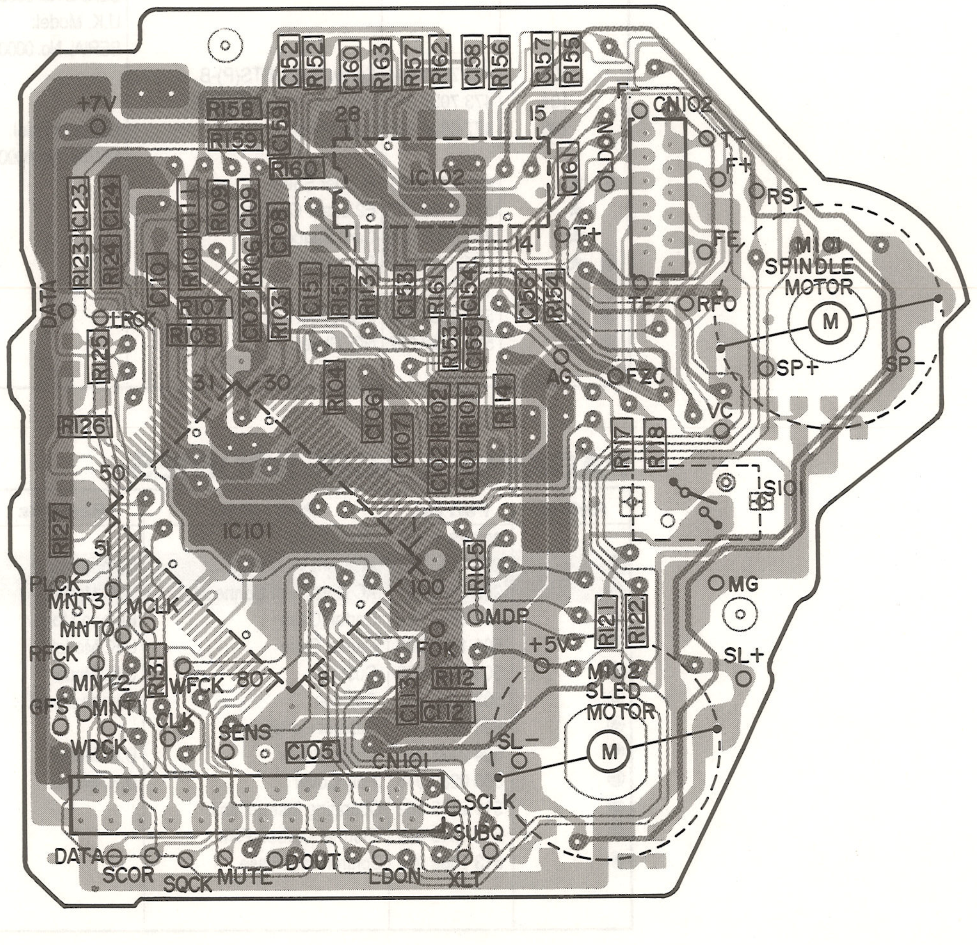

W-001
TR501
TR502
TR504
TR506
TR505
SW503 PAUSE
SW502 STOP
SW501 PLAY
SW506 FUNCTION
SW505 FF
SW504 REW
SW507 ENTER
IC501
IC502
IC101
IC102
IC503
XL501
XL101
FL501
CN501
CN504
CN506
CN502
CN505
W-002
TR507
SW508 OPEN/CLOSE
SW518 10
SW519 +10
SW517 9
SW516 8
SW515 7
SW514 6
SW513 5
SW512 4
SW511 3
SW510 2
SW509
L501
L101
L102
ZD501
ZD502
ZD101
ZD102
GND
OUT
VCC
1U-2820-1
JK901
JK902
T901 POWER TRANS
TR901
TR902
TR903
TR904
IN GND OUT
IC901
IC902
CN901
CB506
W-901
D901
D902
D903
D904
D905
D906
R910
C910
ZD902
ZD903
1U-2820-2


CN503
1U-2820-3
SW520

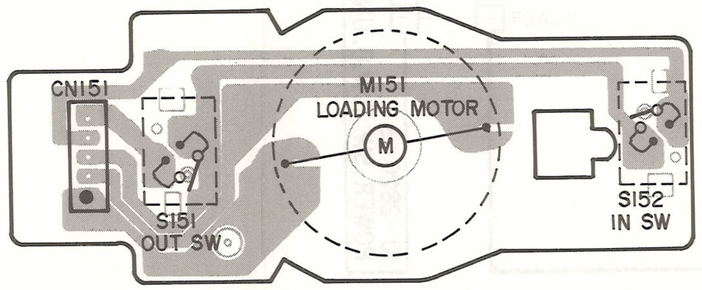
A
B
C
D
E

CD MECHANISM UNIT

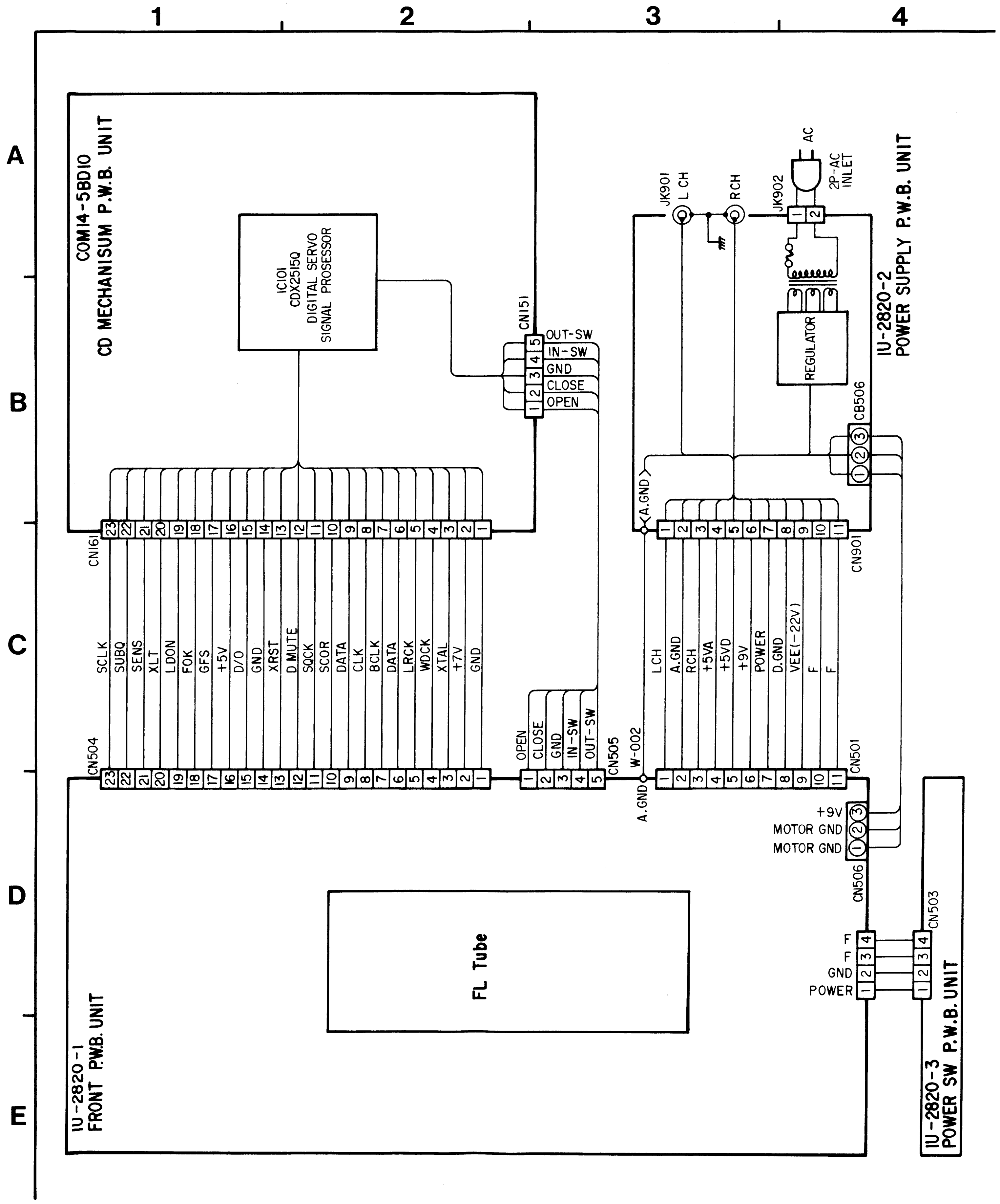
SA4 6494 32A CD MECHANISM P.W.B. UNIT ASS'Y


+7V
IC102
IC101
CN102
CN101
M101 SPINDLE MOTOR
M102 SLED MOTOR
S101
RST
FE
TE
RFO
SP+
SP-
AG
F2C
VC
MG
SL+
SL-
MDP
FOK
+5V
SENS
DATA
LRCK
PLCK
MNT3
MNT0
MCLK
RFCK
MNT2
MNT1
GFS
WFCK
CLK
WDCK
SCLK
SUBQ
SCOR
SQCK
MUTE
DOUT
LDON
XLT
F+
T+
T-
DON
LDOF

S16 4572 111 LOADING P.W.B. UNIT ASS'Y


CN151
M151 LOADING MOTOR
S151 OUT SW
S152 IN SW

WIRING DIAGRAM


1
2
3
4
A
B
C
D
E
COMI4-5BDIO
CD MECHANISUM P.W.B. UNIT
IC101
CDX2515Q
DIGITAL SERVO
SIGNAL PROSESSOR
CN151
OUT-SW
IN-SW
GND
CLOSE
OPEN
CN161
SCLK
SUBQ
SENS
XLT
LDON
FOK
GFS
+5V
D/O
GND
XRST
D.MUTE
SQCK
SCOR
DATA
CLK
BCLK
DATA
LRCK
WDCK
XTAL
+7V
GND
JK901
L CH
R CH
JK902
AC
2P-AC INLET
REGULATOR
CB506
A.GND
CN901
1U-2820-2
POWER SUPPLY P.W.B. UNIT
LCH
A.GND
RCH
+5VA
+5VD
+9V
POWER
D.GND
VEE(-22V)
F
F
CN504
CN505
W-002
CN501
A.GND
+9V
MOTOR GND
MOTOR GND
CN506
FL Tube
F
F
GND
POWER
CN503
1U-2820-1
FRONT P.W.B. UNIT
1U-2820-3
POWER SW P.W.B. UNIT

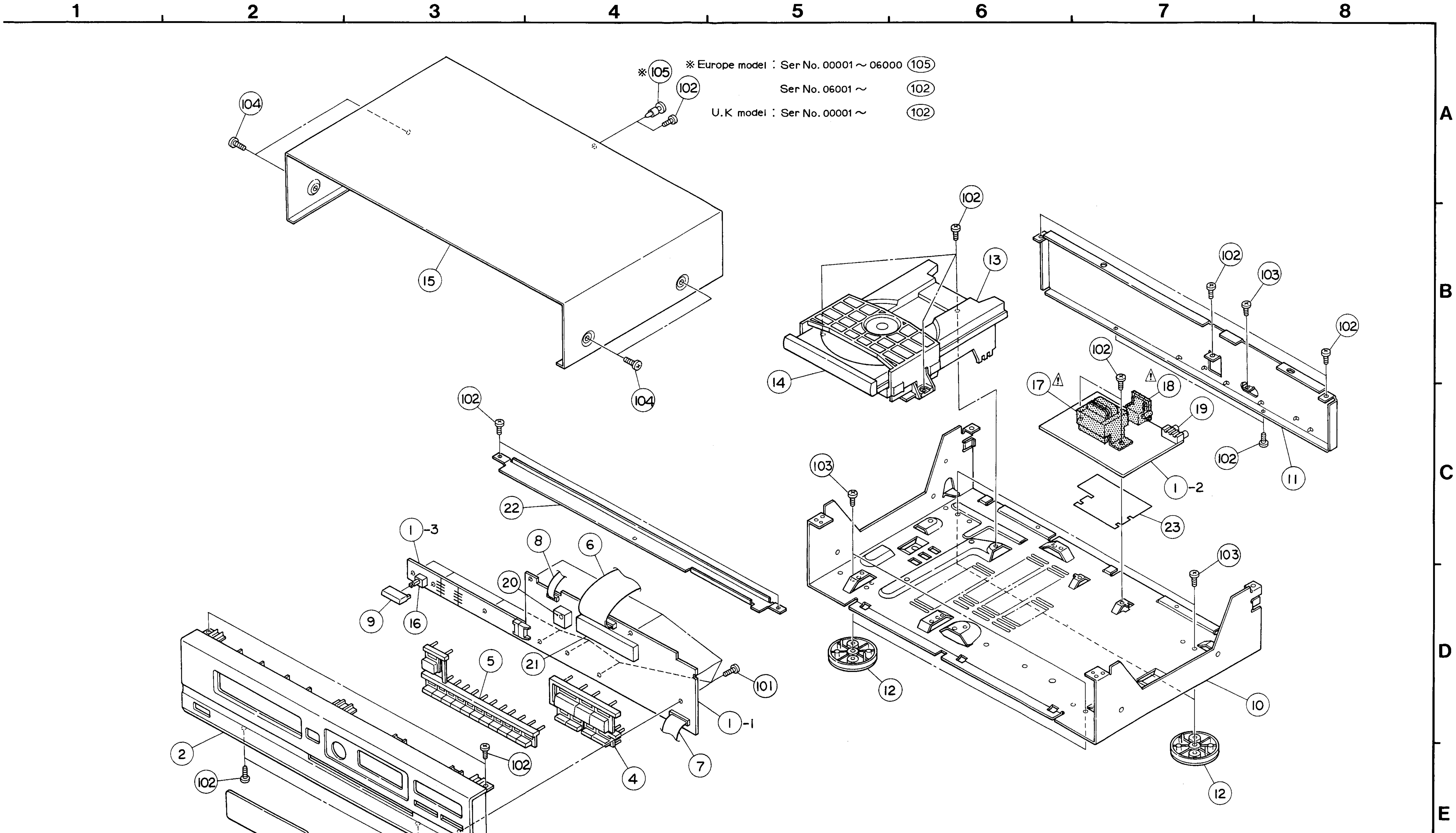
PARTS LIST OF EXPLODED VIEW

Ref No.	Part No.	Part Name	Remarks
◉ 1	1U 2820	CD P.W.B. Unit Ass'y	
1-1	–	Front P.W.B. Unit	
1-2	–	Power Supply P.W.B. Unit	
1-3	–	Power SW. P.W.B. Unit	
◉ 2	146 1551 207	Front Panel	
3	143 0925 000	Window	
4	113 1724 005	Function Button	
5	113 1725 004	Ten Key	
6	009 0120 000	23P FFC Cable	CN504
7	009 0119 008	11P FFC Cable	CN501
8	203 4975 028	3P PH-PH Con. Cord	CN506
9	113 1357 210	P.SW Button	
◉ 10	411 1323 119	Chassis	
◉ 11	105 1157 008	Rear Panel	
◉ 12	104 0230 101	:Foot Ass'y	
◉ 13	337 0040 001	CD Mechanism Unit	
14	146 1552 109	Loader Panel	
◉ 15	102 0424 005	:Top Cover	
⚠ 16	212 1039 000	1P Push Switch	
⚠ 17	233 6159 102	Power Trans	
⚠ 18	203 3959 003	2P Inlet	JK902
19	204 8487 007	2P Pin Jack	JK901
20	499 0150 008	IC SBX1610-52	IC503
21	393 8021 006	FL Tube	FL501
22	412 9458 005	Hold Blacket	
23	461 0878 000	PVC Sheet	
101	473 7505 007	Screw 2.6×8 CBTS(P)-Z	
102	473 7002 021	Screw 3×8 CBTS(S)-B	
102	473 7002 021	Screw 3×8 CBTS(S)-B	Europe Model: SERIAL No.O6001~ U.K. Model: SERIAL No.O0001~
103	473 7500 044	Screw 3×8 CBTS(P)-B	
104	473 7007 013	Screw 4×10 CBTS(S)-B	
105	477 0096 023	Push Rivet	Europe Model: SERIAL No.O0001~06000
◉ ★	461 9063 007	Rubber Sheet	
★	513 2358 007	E2 Laser Caution	
★	449 0050 035	Card Spacer	
◉ ★	FPC 315K E2	Front Unit	
◉ ★	122 9006 004	Spacer	
◉ ★	513 2359 006	Inst. Label	
◉ ★	513 1642 002	NO. Sheet	

PACKING & ACCESSORIES

Ref No.	Part No.	Part Name	Remarks	Q'ty
	203 2310 009	2P Pin Cord		1
⚠	206 2108 003	:AC Cord With Plug	Europe Mod	1
⚠	206 2113 001	:AC Cord With Connector	U.K. Model	1
◉	501 1803 026	:Carton Case	Europe Mod	1
◉	501 1817 038	:Carton Case	U.K. Model	1
◉	503 1173 008	:Cushion	U.K. Model	2
◉	503 9223 002	:Cushion	Europe Mod	2
◉	505 0131 050	:Cabinet Cover		1
◉	504 0125 005	:Stylen Paper	U.K. Model	1
◉	505 0283 018	:Poly Cover	U.K. Model	1
◉	511 2742 002	Operating Instructions		1
◉	513 1349 004	Thermal Carbon Film		1
◉	513 1389 006	Control Card Base		1

EXPLODED VIEW OF CHASSIS AND CABINET

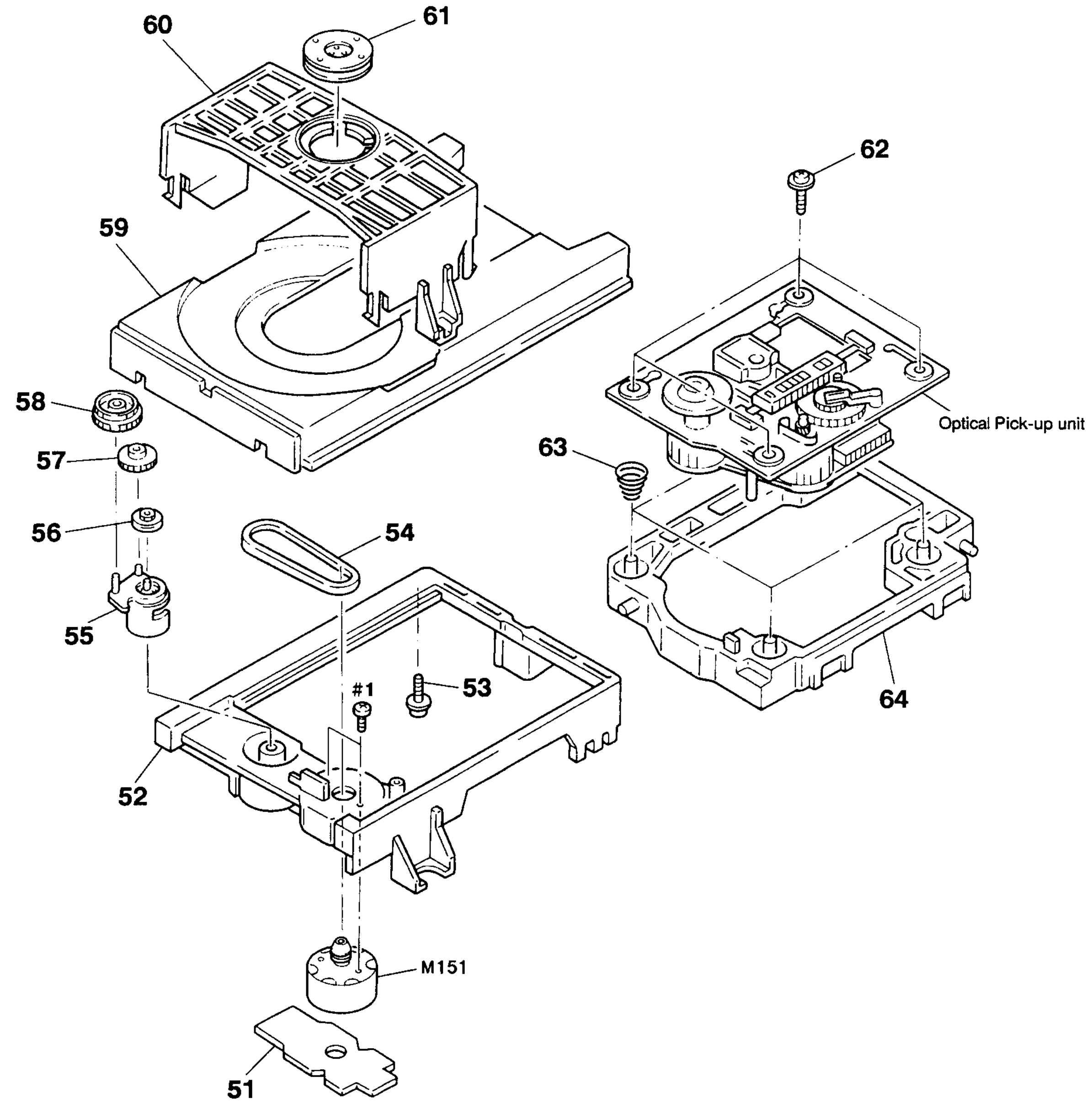

1
2
3
4
5
6
7
8
A
B
C
D
E
※(105)
(102)
(104)
(15)
(104)
(102)
(13)
(14)
(102)
(103)
(102)
(102)
(17) ⚠
⚠ (18)
(19)
(102)
(11)
(1)-2
(23)
(103)
(103)
(10)
(12)
(12)
(102)
(22)
(1)-3
(8)
(6)
(20)
(9)
(16)
(21)
(5)
(101)
(1)-1
(2)
(102)
(102)
(4)
(7)
(3)

※ Europe model : Ser No. 00001 ~ 06000 (105)
Ser No. 06001 ~ (102)
U.K model : Ser No. 00001 ~ (102)

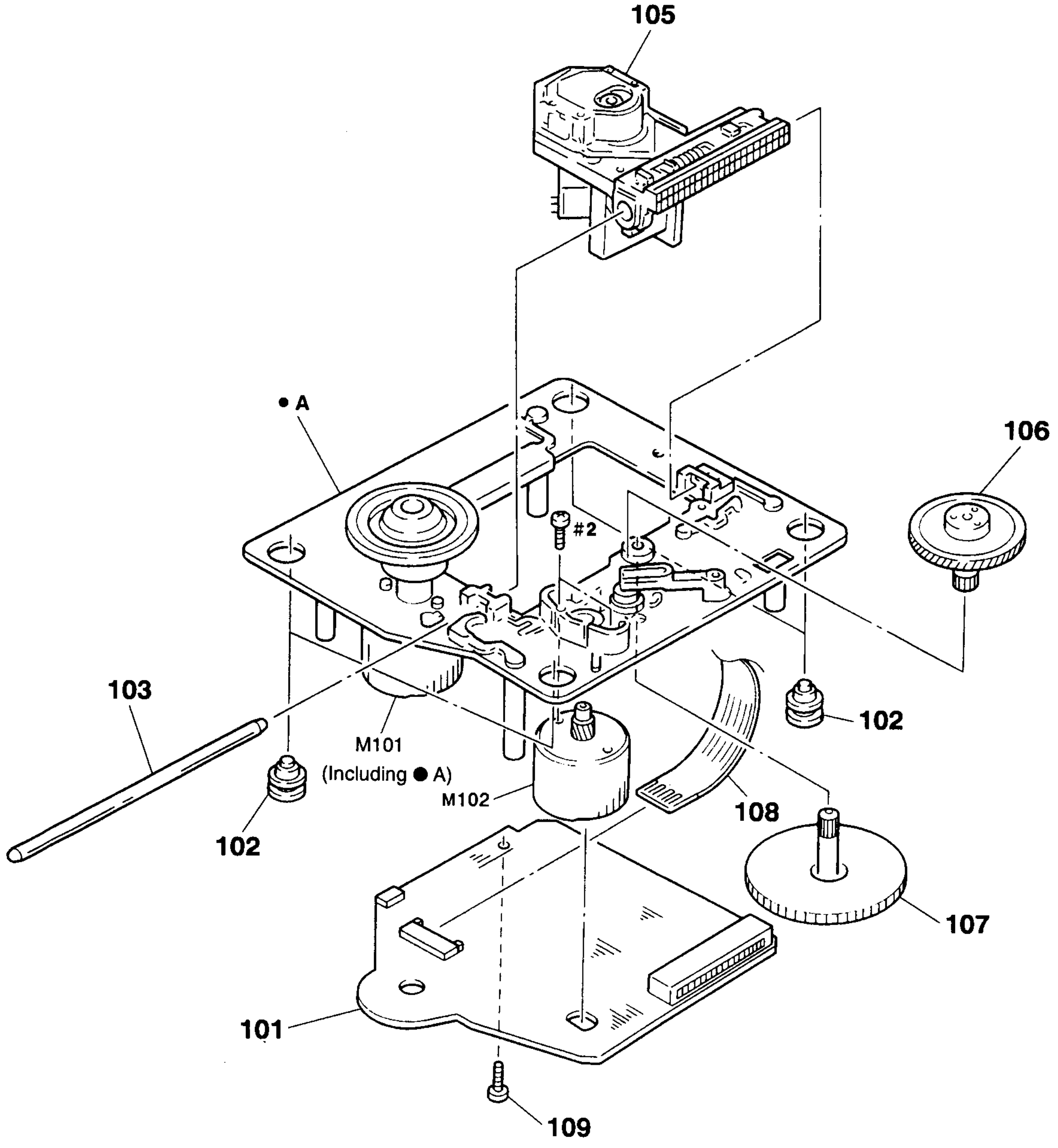
WARNING:
Parts marked with this symbol ⚠ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

PARTS LIST OF CD MECHANISM UNIT

MD UNIT


60
61
62
59
58
57
56
55
54
63
Optical Pick-up unit
53
#1
64
52
M151
51

OPTICAL PICK-UP UNIT


105
● A
106
#2
103
102
M101
(Including ● A)
M102
108
102
107
101
109

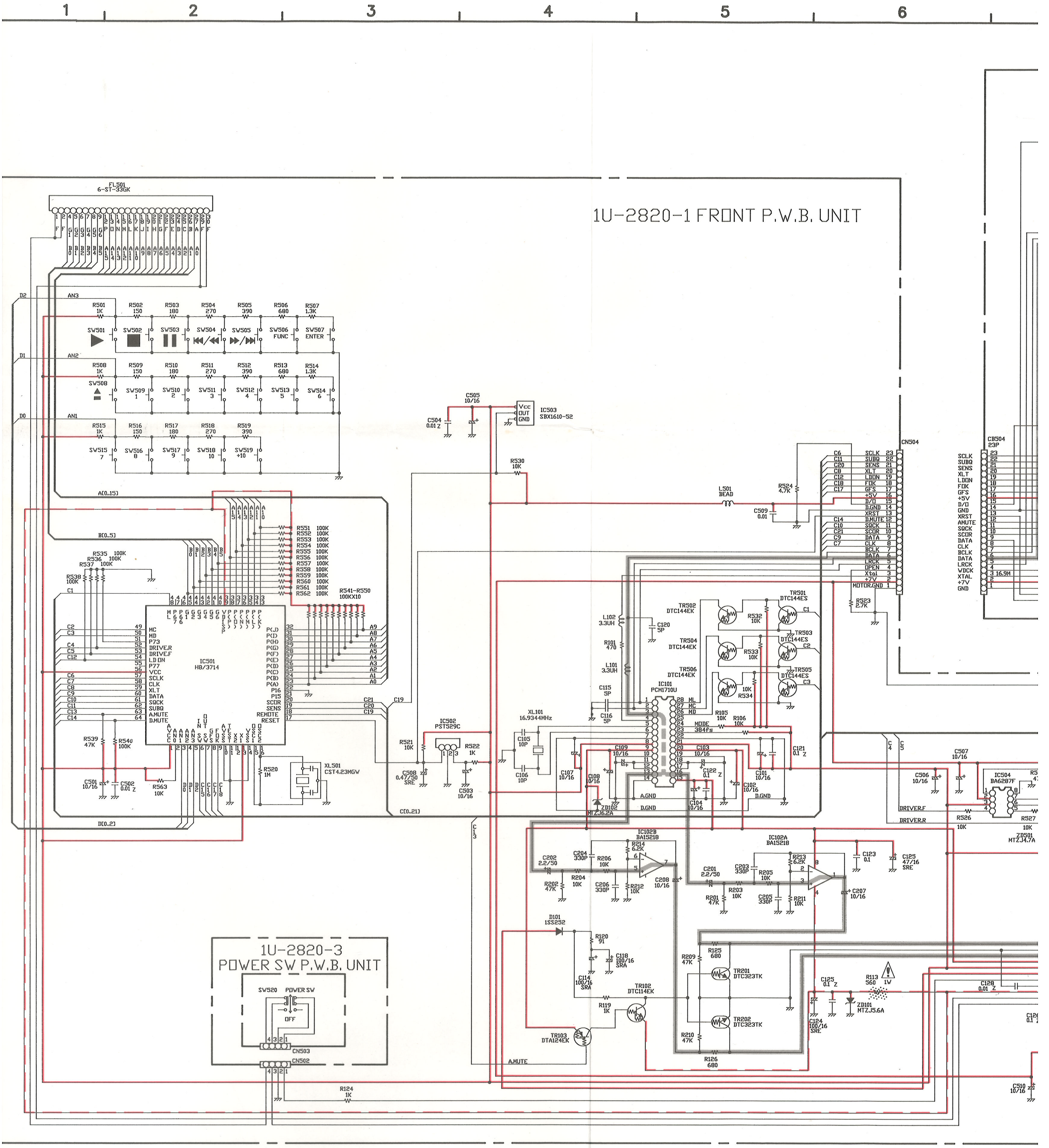
PARTS LIST OF CD MECHANISM UNIT

Ref No.	Part No.	Part Name	Remarks
51	S16 4572 111	Loading P.W.B. Unit Ass'y	See page 28, 29
52	S49 3311 101	Chassis(MD)	
53	S49 1758 321	Yoke Bracket	
54	S49 2764 901	Belt	
55	S49 3310 901	Cam	
56	S49 2765 101	Pulley(S)	
57	S49 2762 801	Gear(C)	
58	S49 3310 701	Gear(PL)	
59	S49 3311 201	Disk Table	
60	S49 3311 001	Holder(MG)	
61	S14 5253 811	Magnet	
62	S49 3313 401	Screw	
63	S49 4850 301	Spring(BU)	
64	S49 3312 901	Holder(BU)	
M151	SA4 6043 63A	Motor(L)Ass'y	
#1	471 3201 024	2.6×4 CBS	

PARTS LIST OF OPTICAL PICK-UP UNIT

Ref No.	Part No.	Part Name	Remarks
◉ 101	SA4 6494 32A	CD Mechanism P.W.B. Unit Ass'y	See page 28, 29
102	S49 3312 601	Insulator Rubber	
103	S49 1756 501	Sled Shaft	
105	499 0191 009	Optical PU KSS240A	
106	S49 1756 701	Gear(M)	
107	S49 1756 401	Gear(P)	
108	S15 7500 111	Flat Cable	
M101	SX4 9175 233	Motor(Spindle)Ass'y	
M102	SX4 9175 041	Motor(Sled)Ass'y	
109	S49 5162 001	Screw	
#2	471 1810 019	2×3 CPS	

SCHEMATIC DIAGRAM

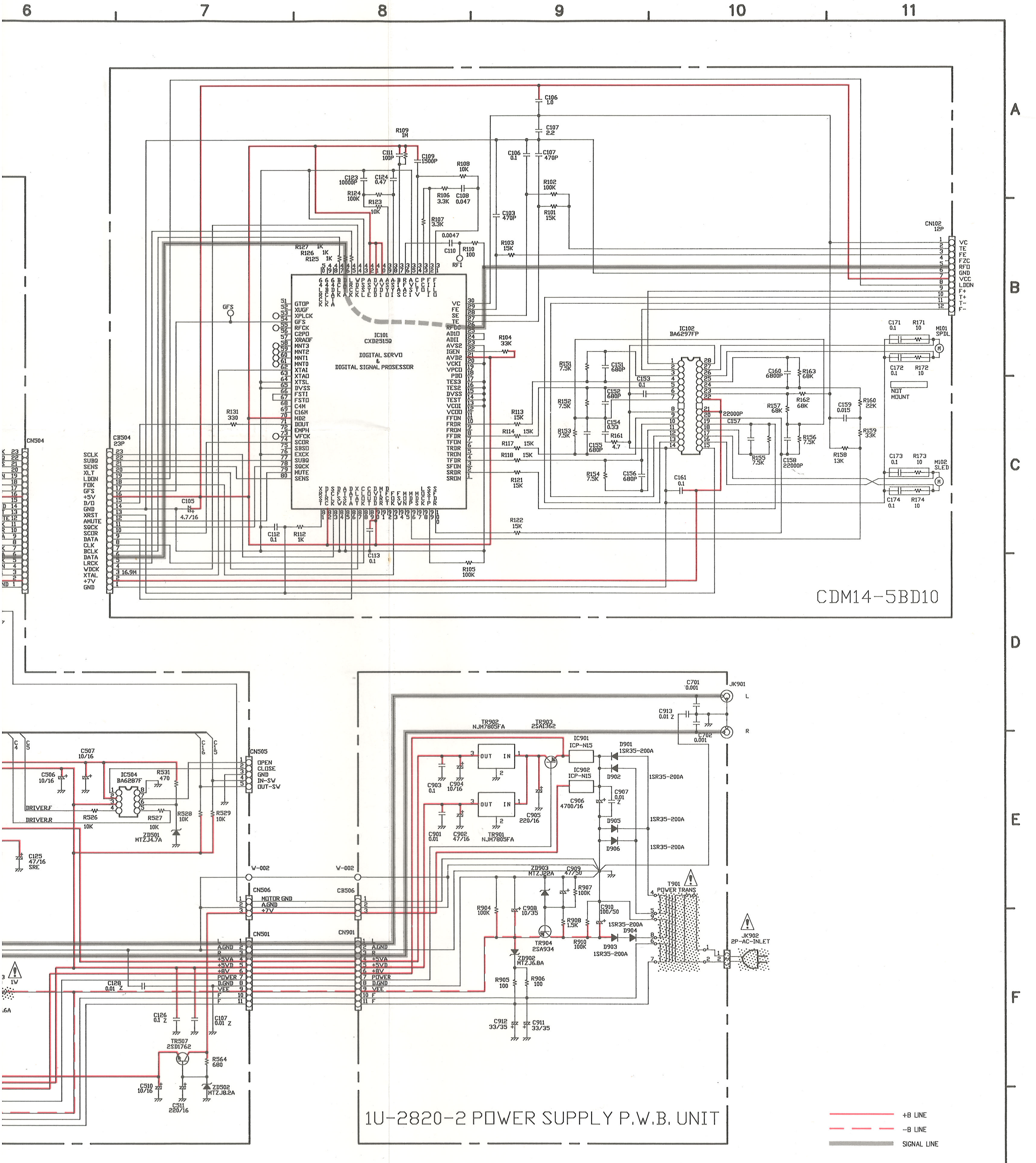

1
2
3
4
5
6
1U-2820-1 FRONT P.W.B. UNIT
1U-2820-3 POWER SW P.W.B. UNIT
FL501 6-ST-33GK
SW501
SW502
SW503
SW504
SW505
SW506 FUNC
SW507 ENTER
SW508
SW509 1
SW510 2
SW511 3
SW512 4
SW513 5
SW514 6
SW515 7
SW516 8
SW517 9
SW518 10
SW519 +10
IC501 H8/3714
IC502 PST529C
IC503 SBX1610-52
XL501 CST4.23MGW
XL101 16.9344MHz
IC101 PCM1710U
IC102B BA15218
IC102A BA15218
IC504 BA6287F
TR501 DTC144ES
TR502 DTC144EK
TR503 DTC144ES
TR504 DTC144EK
TR505 DTC144ES
TR506 DTC144EK
TR102 DTC114EK
TR103 DTA124EK
TR201 DTC323TK
TR202 DTC323TK
D101 1SS252
ZD101 MTZJ5.6A
ZD102 MTZJ6.2A
ZD501 MTZJ4.7A
L501 BEAD
L101 3.3UH
L102 3.3UH
R541-R550 100KX10
CN504
CB504 23P
SW520 POWER SW
OFF
CN503
CN502
A.MUTE
A.GND
D.GND
DRIVER.F
DRIVER.R
MODE 384fs

WARNING:
Parts marked with this symbol ⚠ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

CAUTION:
Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a
exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 240

WARNING:
DO NOT return the unit to the customer until the problem is located and corrected.

NOTES:
Circuit and parts are subject to change without prior notice.


6
7
8
9
10
11
A
B
C
D
E
F
G
H
IC101
CXD2515Q
DIGITAL SERVO
&
DIGITAL SIGNAL PROSESSOR
IC102
BA6297FP
CN102
12P
VC
TE
FE
FZC
RFO
GND
VCC
LDON
F+
T+
T-
F-
M101
SPDL
M102
SLED
NOT MOUNT
GFS
RFI
CN504
CB504
23P
SCLK
SUBQ
SENS
XLT
LDON
FOK
GFS
+5V
D/D
GND
XRST
AMUTE
SQCK
SCOR
DATA
CLK
BCLK
DATA
LRCK
WDCK
XTAL
+7V
GND
16.9M
CDM14-5BD10
CN505
OPEN
CLOSE
GND
IN-SW
OUT-SW
IC504
BA6287F
DRIVER.F
DRIVER.R
ZD501
MTZJ4.7A
W-002
CN506
CB506
MOTOR GND
A.GND
+7V
CN501
CN901
A.GND
R
+5VA
+5VD
+8V
POWER
D.GND
VEE
F
TR507
2SD1762
ZD502
MTZJ8.2A
JK901
L
R
TR902
NJM7805FA
TR903
2SA1362
IC901
ICP-N15
IC902
ICP-N15
TR901
NJM7805FA
D901
1SR35-200A
D902
D905
D906
ZD903
MTZJ22A
TR904
2SA934
ZD902
MTZJ6.8A
T901
POWER TRANS
D903
D904
JK902
2P-AC-INLET
1U-2820-2 POWER SUPPLY P.W.B. UNIT
+B LINE
-B LINE
SIGNAL LINE

eristics.
urer.

e either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current
her side of the power cord is less than 240 kohms, the unit is defective.

cated and corrected.

notice.

NOTES

ALL RESISTANCE VALUES IN OHM. k=1,000 OHM, M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD. P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.